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Via Hand Delivery

Judi McIntyre Birkitt, Senior Planner
Loudoun County Department of Planning, Land Use Review
1 Harrison Street, S.E.
3rd Floor
Leesburg, Virginia 20177

Re: SPEX 2009-0009 & CMPT 2009-0001
GEP/S Hybrid Energy Park

Dear Ms. Birkitt:

As discussed at the meeting on June 17, 2009, with John Andrews, Jack Andrews, Jordan Dimoff, and Randy Minchew, the applications for the Stonewall Secure Business Park and the Hybrid Energy Park are being separated with this submission of the referral responses. Enclosed with this submission are the revised application materials, including the Statement of Justification and Attachment and revised plans. This letter addresses and provides you with written responses to the referral agency comments in the above referenced applications. For your convenience, each of the staff comments are stated below and the Applicant's responses follow in bold italics.

LOUDOUN COUNTY DEPARTMENT OF PLANNING – COMMUNITY PLANNING (Joe Gorney, 7/2/2009)

ANALYSIS

LAND USE

Consistency Between Applications

Staff notes the proposed Hybrid Energy Park comprises approximately 87.2 acres of the larger 291.5-acre Stonewall Secure Business Park (ZMAP 2008-0017, et alia). The Stonewall Secure Business Park application includes a Rezoning Amendment (ZMAP 2008-0017) and three Special Exceptions (SPEX 2008-0068, SPEX 2008-0069, &

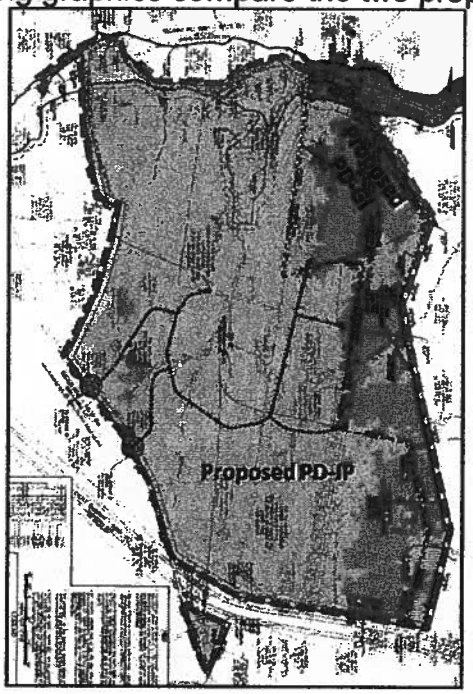
SPEX 2008-0070) to allow 6.81 million square feet of high-security office and industrial uses. The current application does not address the relationship of the two applications. A review of the Rezoning Amendment and Special Exceptions was sent under separate cover on May 21, 2009.

Staff notes that the two applications contain inconsistencies regarding the proposed zoning boundaries and the acreages of those zoning categories:

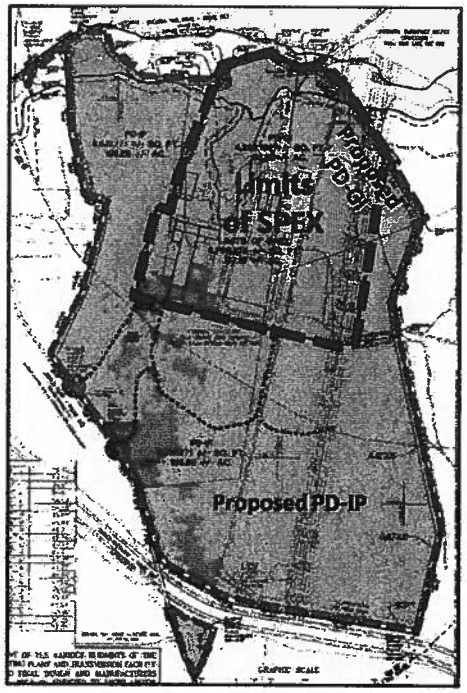
	Stonewall Secure Business Park (ZMAP 2008-0017)	Hybrid Energy Park (SPEX 2009-0009)
PD-GI	62.5	98.7
PD-IP	231.8	195.6
Total	294.3	294.3
SPEX Area	87.2	not included

Comparison of Stonewall Applications

The following graphics compare the two proposals.



Stonewall Secure Business Park
(ZMAP 2008-0017)



Hybrid Energy Park
(SPEX 2009-0009)

The differences between the applications notwithstanding, while staff understands that the special exception and rezoning applications are separate, the proposed land uses are related. Currently, the relationship of the two proposals is unclear. Additional

information is necessary to determine whether the uses will be integrated, to determine whether environmental resources will be adequately protected, and to assess the full transportation impacts of the two proposals.

Applicant Response

The Stonewall Secure Business Park applications are being put on hold due to the national and global economic recession. The Hybrid Energy Park applications have been revised to include a rezoning to the MR-HI zoning district and the property subject to the rezoning and special exception applications consists of approximately 90.5 acres.

With the projected shortage of up to 2,800 megawatts of power in the Northern Virginia region, the Hybrid Energy Park will provide the means to produce electric power that will address some of the Northern Virginia's projected shortage in a clean and efficient manner.

Dominion Virginia Power has stated that brownouts could start as early as 2011, in Northern Virginia. Electric power is distributed within Virginia by an electric power transmission system. Virginia's electrical network is an integral component of the regional transmission system, which serves a number of important functions. In-state electric-power generation it is far from sufficient to satisfy the State's consumption. On average only 80% of the electrical energy used by Virginia consumers is generated in-state. Approximately 20% is imported from out-of-state generators on power transmission lines to supply Virginia residents and businesses. There are electrical loses due to line resistance when transporting power from other areas.

Northern Virginia and Loudoun County are leaders in the high technology industry and are facing escalating reliability problems with electrical power generation and transmission which has resulted in threats of rolling blackouts. Electricity is an integral part of life and electric system reliability is indispensable to support residential, commercial, industrial and governmental functions. Lack of reliable electricity is not just an inconvenience but it creates an economic loss. Loudoun County has become one of the prime locations for internet related companies. These internet related companies include numerous data centers that create high value tax revenues with few employees.

With Loudoun County's foresight and with the approval of the Hybrid Energy Park the issue of electrical self sufficiency and security in the future would allow for the continuation of the expansion of these high value tax paying companies to locate within Loudoun County. The businesses and data center users require reliable, redundant sources of electricity which the Hybrid Energy Park will provide.

Energy and Communication Facilities

The applicant also stated that the site contains the resources necessary for a utility plant, including two interstate natural gas transmission lines and three 230kV Dominion Virginia transmission circuits on two separate aerial structure lines (*Statement of Justification, March 25, 2009, p.4*). It is unclear what portion of the electricity to be generated on-site would be used by the Stonewall Secure Business Park and what portion would be routed to the local electrical grid.

The applicant has provided a plan view depicting possible locations for the utility plant facilities. These facilities would cover approximately 33 acres (approximately 38 percent) of the 87-acre Special Exception Area. Residential uses lie approximately 450 feet to the west of the proposed Special Exception Area and power plant turbines. The applicant did not provide elevations or heights of the facilities.

The County anticipates that a visual and spatial transition could be achieved through an appropriate scale, intensity of use, and design characteristics, including both site design and building design, between the Suburban Policy Area to the east and the Rural Policy Area to the west. With the information provided, it is unclear how elements of the Green Infrastructure will be integrated into the development, whether natural open spaces will be developed as a predominant visual element and enhancement to the area's river and stream corridors, or how the development would be compatible with the low-density residential development existing or planned in the remainder of the subarea.

Given the nature and scale of the proposed use, the proximity of residential uses 450 feet to the west, the proximity of the Leesburg Executive Airport, and the presence of sensitive environmental features, more information is necessary to discern the impact of the utility plant. Although the general location of the power plant facilities have been depicted in plan view on the plat, no information has been given regarding the disposition of the areas outside the power plant footprint. While the areas outside the power plant footprint are covered under the Stonewall Secure Business Park application (ZMAP 2008-0017, et alia), that application does not offer site-specific development information.

Currently, this application and Stonewall Secure Business Park (ZMAP 2008-0017, et alia) are being considered separately. Given that the two applications have been submitted separately, the current application will generally be evaluated as a stand-along application. However, it is staff's understanding that uses within the proposed Stonewall Secure Business Park may be reliant on energy produced from the proposed power plant. It is unclear whether the Business Park will be viable without the power plant. Additionally, the combined impact of the two applications is unclear. Consideration of the power plant impacts without consideration of the Business Park impacts may not allow elements of the Green Infrastructure, open space, or compatibility to be adequately

addressed. (See the Green Infrastructure section for a more extensive discussion of the elements of the Green Infrastructure).

Staff recommends the applicant combine the Hybrid Energy Park and Stonewall Secure Business Park applications to ensure that the layout and design of the two are consistent with Plan policies, to adequately assess all the environmental on-site resources, to determine areas most suitable for development, to assess transportation impacts, and to ensure that the necessary infrastructure will be available to serve the proposed uses. The applicant should specify the number of employees, the amount of truck traffic, and compatibility measures between the proposed use and the nearby residential uses, and explain the impacts of the generated traffic to the surrounding roadway network.

Applicant Response
For reasons stated above, the applications for the Stonewall Secure Business Park and Hybrid Energy Park have been separated. The enclosed revised plans for the Hybrid Energy Park definitively show the layout and design of the Hybrid Energy Park facilities. The previously submitted Memorandum prepared by Patton Harris Rust & Associates, dated February 25, 2009, reports that there will be approximately 25 full-time employees, which will access the Hybrid Energy Park from Gant Lane. These employees will generate 24 AM peak hour trips and 26 PM peak hour trips for a total of 89 average trips per day.

Staff recommends that the applicant provide further information regarding the visual and physical impacts of the utility plant on site resources, nearby residential uses, and the Leesburg Executive Airport. Staff requests information regarding the relationship of the proposed facilities to these uses, along with anticipated compatibility and mitigation measures, such as reforestation, screening, and water protection. Staff also recommends that the applicant provide information regarding the two wastewater lines and pumping equipment between the power plant and the Leesburg Wastewater Treatment Plant.

Applicant Response
The Applicant has conducted a balloon float test which was photographed for information on the visual impacts of the Hybrid Energy Park. Additionally, the Applicant is in the process of preparing photographic simulations of the Hybrid Energy Park and will provide these images when completed.

The Hybrid Energy Park facilities will be designed with a low profile. The tallest components i.e., the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers in the area. The proposed heights of the various components have been added to the revised plans. An FAA application

has been filed to validate that the Leesburg Airport will not be impacted by the facilities.

A cooling tower utilizing high-efficiency mist eliminators is included in the design. Under most conditions, the cooling tower plume or mist is expected to be limited to within the facilities property. The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, states on page 25, ". . . , the probability of occurrence of any adverse effects from the cooling tower plumes on the surrounding community is negligible."

Water quality will be handled on-site through the upgrade of the existing pond for stormwater management. There will be no process water runoff from the facilities and the stormwater management pond will accommodate the onsite stormwater.

Pipelines will carry the effluent from the Town of Leesburg treatment plant or water from Loudoun Water to the Hybrid Energy facilities to be used as steam for power production or for cooling. The location of the pipelines will be coordinated with the Town of Leesburg, Loudoun Water and Luck Stone. The pipe materials will meet the specifications for this type of pipe which will be buried.

Removal of trees to accommodate construction of the facilities will be minimized to the extent possible. Two tree preservation areas have been added to the plans, one near the cooling towers and the other area west of the existing pond.

Staff requests that the applicant provide enough information to effectively assess the proposal, including information regarding any internal resource protection areas or resource protection measures. The applicant should also explain and demonstrate how elements of the Green Infrastructure will be integrated into the development, how natural open spaces will be developed as a predominant visual element and enhancement to the area's river and stream corridors, and how the development will be compatible with the low-density residential development existing or planned in the remainder of the subarea. With consideration of elements of the Green Infrastructure, open space, and the proximity of neighboring residential uses, the applicant should demonstrate how the application will effect a visual and spatial transition between the Suburban Policy Area and the Rural Policy Area and demonstrate how and why the proposal is appropriate for the Lower Sycolin subarea of the Transition Policy Area.

Applicant Response
The Hybrid Energy Park is appropriate for this proposed location for a number of reasons.

- ***The adjacent stone quarry and the proposed expansion and Loudoun Water's proposed water treatment plant are two compatible uses bordering and nearby the Subject Property.***
- ***The Applicant will preserve the areas within the stream valley and river stream corridor overlay area which will preserve trees and vegetation, floodplain areas, wetlands, drainage swales and steep slope areas while enhancing and improving the existing pond to provide water quality attributes for the Subject Property.***
- ***The existence of two natural gas transmission lines each transporting natural gas from differing locations within the United States allowing for redundant non interruptible source of clean fuel. If the natural gas was not available on site, natural gas would be required to be transported by trucks to the site make which would be unacceptable.***
- ***The proposed location contains two 230kV and one 500kV overhead high voltage transmission lines. The Hybrid Energy Park facilities will tie into the 230kV lines (the quiet lines) to power the transmission grid.***
- ***The Town of Leesburg discharges its wastewater treatment plant effluent directly into the Potomac River, reuse of this water for energy producing steam and cooling will eliminate 56 tons of nutrients and solids from the Potomac River and ultimately the Chesapeake Bay.***
- ***In addition, the Hybrid Energy Park can be supplied water through the future nearby Loudoun Water reservoirs.***
- ***The Applicant has tested the visual element of the proposed facilities and found the location due to the topography and existing vegetation will naturally hide and screen the various components of the Hybrid Energy Park.***
- ***The proposed location of the Hybrid Energy Park facilities were carefully considered and placed to have minimal impacts to the extent possible on the Green Infrastructure.***

The applicant should also provide information regarding alternative locations and configurations that may have been considered, both within the limits of the proposed Special Exception and the larger Stonewall Business Park.

Applicant Response

The location of the Hybrid Energy Park has been tested at various locations within the overall site and the proposed location chosen was based on the lack of visibility and impacts on the environmental features. The proposed location of the Hybrid Energy Park is unique. In locating an electrical power producing facility three components must be available, i) electrical transmission facilities, ii) fuel and iii) water. The Hybrid Energy facility is proposed to be located on property that contains two 230 kV and one 500 kV high voltage electrical transmission lines

owned by Virginia Dominion Power and operated through PJM. Two main high pressure natural gas lines also traverse the property; one extends from the Gulf of Mexico and the other from the Ohio Valley. These natural gas lines connect to the main north-south Transco natural gas line and also connect to the Coles Point, Virginia LNG port. Since the source of these natural gas lines are from different geographical areas, there is a backup source of natural gas In the event that one of the gas lines is disabled. Therefore, the proposed Hybrid Energy Park is sited in a unique location that provides the needed components.

GREEN INFRASTRUCTURE

Air Quality

The applicant states that the proposed Hybrid Energy Park will be required to comply with the requirements of the Clean Air Act Amendments of 1990[1]. The applicant also states that natural gas, which would be combusted in the power plant, has 63 percent of the carbon content of coal and 80 percent of the carbon content of petroleum. The natural gas would be drawn from underground gas lines, which run across the site, precluding the use of tanker trucks and their associated pollution. The applicant states that the proposed power plant may qualify for credits that would enable the closure of a coal-fired power plant within a Power Service Area. The boundaries of the referenced Power Service Area have not been defined and it is unclear which facilities might be considered for closure. The applicant also states that local approval of the proposed special exception and commission permit are the first steps in a longer process, which involve federal and State approvals (*Statement of Justification, March 25, 2009, p.7*).

Given the nature of the application and its relationship to the Clear Air Act, the SIP, and the utilization of wastewater effluent from the Leesburg Wastewater Treatment Plant, the applicant will need to coordinate with the Virginia Department of Environmental Quality (DEQ), the Metropolitan Washington Council of Governments (MWCOG), and the Town of Leesburg. The applicant has not provided details regarding coordination with these entities or with the owners of the natural gas transmission lines and the electrical transmission lines.

Additionally, the impact of the power plant on the surrounding uses and the region is unclear. To discern the nature of the proposal and effectively evaluate it for conformance with the Plan, staff would expect the applicant to provide information regarding plant operations, compliance with the requirements of the federal Clean Air Act and its Amendments, the State Implementation Plan (SIP), and regional Attainment plans, and other measures to improve air quality, such as tree planting and preservation.

[1] Supplemental Information regarding air quality is provided in Attachment 1.

Staff recommends that the applicant coordinate with the staff of the Virginia Department of Environmental Quality (DEQ) at the Northern Virginia Regional Office and the Metropolitan Washington Council of Governments (MWCOG) regarding compliance with the requirements of the Clean Air Act Amendments, the State Implementation Plan, and the air permit review process. The applicant should explain the timing and the relationship of the land use applications to federal and State permits.

Applicant Response

The Applicant is well aware of the extensive local, State and Federal permitting requirements for the facilities, and will coordinate with those entities at the appropriate time. The Applicant has had discussions with the Town of Leesburg and Loudoun Water regarding the use of wastewater effluent and reservoir water, and has had preliminary discussions with the gas transmission line owners as well as Dominion Virginia Power and NOVEC.

Land use approvals are required prior to the issuance of applications for the air permits. The Hybrid Energy facility will utilize Best Available Control Technology ("BACT") in accordance with the most current Virginia DEQ requirements. Air emissions will be regulated under an air permit issued by VA DEQ prior to the start of construction, and monitored on a continuous basis during operations. The Hybrid Energy Park facilities will utilize air pollution equipment that represents the best technology available in the United States today, including oxidation catalyst to control CO, and dry low-NOx combustion systems and selective catalytic reduction system to control NOx. The Virginia DEQ has responsibility for issuing air pollution permits for the Hybrid Energy facility. A construction permit must be issued before the commencement of any construction activities on site. There are several different types of air analysis that must be completed in order to obtain the air permit for this facility:

- ***A prevention of significant deterioration ("PSD") analysis for NOx emissions***
- ***A new source review ("NSR") analysis for the pollution ozone and precursor nitrogen oxides***
- ***A minor source permit will be needed for the pollutants PM10, sulfur dioxide, carbon monoxide and volatile organic compounds***

Any emission offsets for NOx will be obtained from other existing source in the metropolitan Washington DC area and will be determined by DEQ. The Environmental Protection Agency ("EPA") has developed their Appendix S policy for obtaining offsets which has been used on many occasions to facilitate growth in non-attainment areas.

The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, provides additional information.

The applicant should address air quality impacts of the plant, both local and regional, and provide information regarding plant operations, compliance with the requirements of the federal Clean Air Act and its Amendments, the State Implementation Plan (SIP), and regional Attainment plans, and other measures to improve air quality, such as tree planting and preservation.

Applicant Response
See above.

Because the proposed power plant would also be dependant upon its interface with natural gas supplies, electrical power transmission facilities, and treated wastewater, the applicant should also provide information regarding the nature of those interfaces and the status of coordination with the owners of those facilities.

Applicant Response
The Applicant submitted letters of request to purchase wastewater from the Town of Leesburg and water from Loudoun Water. The Applicant has been meeting with the Town and Loudoun Water to discuss arrangements for the required water supply.

The Applicant has been in discussions with the natural gas line operators and connection to the natural gas lines has been validated. The Applicant expects to tie directly into both the Columbia Gas and Dominion T1 natural gas pipelines that traverse the site, and provide for metering and regulating equipment in a separate on-site facility.

The Applicant is aware of the PJM (the local Regional Transmission Organization) requirements for the connection to the high voltage power transmission lines. The Applicant anticipates interconnecting directly onto the two existing Dominion 230kV transmission lines that traverse the site, with the associated switchyard equipment to be located on-site. An application for the electrical studies required for the interconnection will be filed with PJM at the appropriate time.

Staff recommends that any use be conditioned on the approval of the applicable State and federal permits.

Applicant Response
Once the required land use approvals and other local approvals are received from Loudoun County, the Applicant will proceed with the analysis and application of any required State and Federal permits and approvals, including but not necessarily limited to the following:

- ***Air Permit***

- ***Water – VPDES***
- ***Water – Stormwater***
- ***Water – Wetlands/Streams/Subaqueous land***
- ***Water – Health Department***
- ***Water – Oil Pollution Act***
- ***Solid Waste***
- ***SCC Application, including the Virginia DEQ required Supplement, which is an analysis of environmental impacts***
- ***Army Corps of Engineers: Tidal and Non-tidal Wetlands***
- ***Erosion and Sediment Control***
- ***FAA***
- ***Federal Energy Regulatory Commission***
- ***US Department of Energy***
- ***PJM***

Once filed, it is expected that is could take up to 12-24 months to receive the various required State and Federal permits and approvals.

The Applicant has included in the draft Proffer Statement a proffer to obtain approval of the applicable State and Federal permits for the Hybrid Energy Park, prior to construction. As a practical matter, the Hybrid Energy Park could not be constructed or operate without the required permits.

The applicant should also specify the expected number of employees for the power plant and provide details regarding the expected plant operating schedule. The applicant should profile any measures being proposed to reduce single occupancy vehicle trips; vehicle miles traveled, and associated emissions in order to improve air quality, such as the creation of pedestrian and bicycle facilities, park-and-ride lots, and mass transit options.

Applicant Response
The Hybrid Energy Park will have approximately 25 full-time employees that will be divided among three shifts per day. At this time, the operating schedule of the Hybrid Energy facilities has not been determined. The Hybrid Energy Park will be a secured facility and therefore, creation of pedestrian and bicycle facilities are not appropriate through the site.

River & Stream Corridor Resources
The subject property is located within the Goose Creek Watershed and contains significant river and stream resources associated with Sycolin Creek. Sycolin Creek is a tributary of Goose Creek, which in turn flows into the Potomac River. Goose Creek is

impounded east of the subject property, forming the Goose Creek Reservoir. The subject property lies approximately 1,500 feet from the Goose Creek Reservoir.

The applicant has depicted the limits of a 50-foot River and Stream Corridor Resource Management Buffer on the plat but has not described the uses to be permitted in the area. Although a 150-foot SCVB exists along Sycolin Creek, its limits have not been annotated on the plat. The relationship of the SCVB to the 50-foot River and Stream Management Buffer is unclear. Additionally, the proposal appears to impact portions of the 50-foot Management Buffer, although the plat does not address impacts to these resources or anticipated mitigation measures. Additionally, two wastewater lines would need to be constructed in easements connecting the Leesburg Wastewater Treatment Plant with the site. No information has been provided regarding the possible alignment of these lines or their expected impacts to local waterways and other Green Infrastructure resources.

Proposed Special Exception Limits and Power Plant Area

Given the importance of the site's stream corridors, the intensity of the proposed development, and in order to protect the site's stream corridors and drinking water resources, staff recommends that the 50-foot Management Buffer be provided along the Sycolin Creek floodplain and the adjacent steep slopes and that the applicant limit uses in the corridor to those specified in County policies. Adjacent steep slopes extending up to 100 feet beyond the originating stream or floodplain should also be buffered.

Applicant Response
There are no proposed impacts to the RSCOD areas or the Sycolin Creek stream valley buffer areas, with the exception of the improvements to the existing manmade pond to accommodate stormwater for water quality purposes and the required improvements for access to the site from Gant Lane. Process water from the Hybrid Energy Park facilities will not be discharged on site and it will not impact Sycolin Creek. The Hybrid Energy Park will utilize up to approximately 5 million gallons per day of waste water effluent for cooling water and other process water needs in the production of energy, and may approach zero discharge.

The RSCOD and stream valley buffers have been clearly shown on the revised plans.

Additionally, staff recommends that the applicant depict the 150-foot Scenic Creek Valley Buffer on the plat so that the extent of the Buffer and its relationship to the 50-foot River and Stream Corridor Management Buffer can be assessed. Uses within the SCVB should be limited to those defined in the Revised 1993 Zoning Ordinance.

Applicant Response
See above.

The applicant should also address anticipated impacts to local waterways from the construction of two wastewater lines and pumping facilities between the power plant and the Leesburg Wastewater Treatment Plant.

Applicant Response
All environmental measures as set forth in the Virginia Commonwealth's Erosion and Sediment Control Handbook/Regulations and water quality regulations will be adhered to during construction of the improvements necessary to serve the Hybrid Energy Park.

Wetlands
The County predictive wetlands model and the applicant's plat depict wetlands and drainages throughout the site. Several wetlands are hydrologically connected to Sycolin Creek and would be impacted by the proposed use. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends that the applicant avoid impacts to wetlands and natural drainages and design the project so that the functionality of these features are preserved. Staff recommends that the applicant pay special attention to wetlands and drainages

hydrologically connected to Sycolin Creek to help ensure the preservation of the Creek corridor, wildlife habitat, and native vegetation and promote water quality and flood control. Furthermore, degraded wetlands should be restored if those sites are of significant merit. If impacts to wetlands are unavoidable, staff recommends on-site mitigation. Areas near Sycolin Creek may provide areas suitable for wetlands mitigation. Staff recommends that the applicant investigate the potential for these on-site areas to function as wetlands mitigation sites. If on-site mitigation is not possible, staff recommends mitigation within the same watershed and, if mitigation is not possible within the same watershed, within other parts of Loudoun County.

Applicant Response

The Applicant has noted the Jurisdictional Wetlands as approved by the Army Corps of Engineers on the Concept Plan/Special Exception Plat. Minor impacts may be caused by the upgrade of the existing pond for water quality purposes and improvements to Gant Lane; however, applicable permits will be secured from the State and Federal agencies that regulate wetlands. To the extent such disturbances are required; an appropriate restoration/mitigation plan will be prepared.

Any surface water and stormwater will be regulated under a State issued VPDES permit.

Forest Resources

The subject property is heavily forested. The Revised General Plan calls for the protection of forests and natural vegetation for the various economic and environmental benefits that they provide (Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 1). Plan policies also call for the submittal and approval of a tree conservation or forest management plan prior to any land development that "demonstrates a management strategy that ensures the long-term sustainability of any designated tree save area" (Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 3). Forests and indigenous vegetation will be preserved on steep slopes (greater than 25 percent). On moderately steep slopes (15 to 25 percent grade) clearing will be limited to only essential clearing necessary for home construction, road construction, and utility construction. Silviculture activities may be allowed on moderately steep slopes provided that an approved Forest Management Plan is implemented (Revised General Plan, Chapter 5, Forest, Trees, and Vegetation Policies, Forests, Trees, and Vegetation Policy 2).

Gas Line Easement
April 8, 2009

The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) includes a Forest Management Plan and Cover Type Map prepared by Zimar & Associates, Inc. that describes the species, quality, age, and location of the existing vegetation. Six cover types were identified on the subject property. The highest quality forest cover (Cover Type 1) consists primarily of upland hardwoods and is located along either side of the transmission line easement with another area south of the Sycolin Creek corridor. The Forest Management Recommendations from applicant's Forest Management Plan state that "[t]his Cover Type is of the highest priority for forest management and preservation considerations due to the quality and size class of the trees it contains. Portions of this cover type may be considered for preservation during the development planning process" (Forest Management Plan and Cover Type Map, Cover Type 1 text, p. 10). Another high quality Cover Type is Cover Type 2 (bottomland hardwoods), which is located primarily within the Sycolin Creek floodplain and southeast of the site's largest pond. The Forest Management Plan states that Cover Type 2 is "a high priority for preservation as it is currently serving as a riparian buffer area. Vegetated riparian buffers promote stream bank stability and filter run off generated from agricultural and construction activities, thus increasing water quality. Furthermore these areas provide excellent wildlife habitat for a variety of native species" (Forest Management Plan and Cover Type Map, Cover Type 2 text, p. 10).

The recommendations of the applicant's Forest Management Plan closely mirror County policies, which encourage the preservation of existing vegetation and wildlife habitat on developing properties (*Revised General Plan, Chapter 5, Forests, Trees, and Vegetation Policies, Forest, Trees, and Vegetation Policy 10*).

The applicant has depicted a 50-foot wide "Tree Preservation Area" along the exterior boundary of the larger Stonewall Business Park, consisting primarily of Cover Types 3 (early successional forest containing immature Eastern red cedar and Virginia pine) and 4 (Virginia pine), which are both low priorities for preservation (Forest Management Plan and Cover Type Map, Cover Type 3 & 4 text, p. 10). While these areas are low priorities for preservation, some of the vegetation within these areas may be able to fulfill buffer requirements. Regarding Cover Type 3, the Forest Management Plan states that "[t]here are, however, numerous [E]astern red cedar saplings and smaller

trees up to 6" DBH [diameter at breast height] within this Cover Type that may be considered for transplanting for use as visual buffers or in landscaped settings" (Forest Management Plan and Cover Type Map, Cover Type 3 text, p. 10). Regarding Cover Type 4, the Forest Management Plan states, "[a]s the preservation of Virginia pine is not a priority, many of these trees may be removed. This will allow for the release of more desirable hardwood species that are present in the understory such as oak and hickory. The removal of Virginia pine will also improve safety" (Forest Management Plan and Cover Type Map, Cover Type 4 text, p. 10).

The siting of the proposed power plant would impact high-quality vegetation, including Cover Types 1 and 2 (upland hardwoods and bottomland hardwoods, respectively). The plat does not address impacts to these resources or anticipated mitigation measures.

Forest Resources

Staff recommends that the application be revised in order to preserve as much of the high-quality existing vegetation as possible and incorporate it into the development, with particular attention to Cover Types 1 and 2 (upland hardwoods and bottomland hardwoods, respectively). Such a strategy could help meet the open space polices of the Transition Policy Area, maintain the site's forests and natural vegetation, improve its

aesthetic values, and protect existing riparian buffers. For these reasons, the application should commit to additional tree save areas. Particular attention should be given to preserving and maintaining the existing forest cover adjacent to Sycolin Creek, the transmission lines, and the Dulles Greenway, the avoidance of impacts to steep slopes, and limitations on the clearing of moderately steep slopes, with the exception of unavoidable clearing due to road or utility line construction.

Applicant Response
Removal of trees will be minimized to reflect only the areas necessary to accommodate construction of the Hybrid Energy Park facilities. This location was chosen to have the least visual impacts due to the topography. Tree preservation areas have been added to the plans on the west side of the existing pond, where trees will be planted and preserved to mitigate the impacts of the removal of the trees on the site for the Hybrid Energy Park facilities. On the eastern portion of the Subject Property tall trees will be incompatible with the collection of solar energy.

For Cover Types 3 and 4 (early successional forest and Virginia pine, respectively), staff recommends that the applicant commit to the best management practices contained within the Forest Management Plan including the transplanting of desirable species and the removal of Virginia pine. If supplemented with suitable hardwood species, these areas could serve as effective buffers. However, in their current state, these areas should not be proposed as tree save areas.

Staff further recommends a commitment to a long-term maintenance plan and forestry best management practices, including the removal of invasive species.

Applicant Response
The Applicant has addressed long-term maintenance and forestry best management practices in the enclosed draft proffer statement.

Steep and Moderately Steep Slopes
The project area features several steep and moderately steep slope areas, which are depicted on the plat. The siting of the proposed power plant would impact steep and moderately steep slopes. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends the applicant revise the application and submit a design that respects the integrity of steep and moderately steep areas. If the applicant intends to intrude into any moderately steep areas the applicant should explain what special performance standards or treatments are proposed for those areas. The applicant should avoid disturbance of steep slopes.

Applicant Response

All very steep slopes have been avoided. The intrusion into moderately steep slopes has been minimized to the extent possible. The Applicant will comply with the requirements of Zoning Ordinance Section 5-1508 regarding steep slopes.

Plant and Wildlife Habitats

The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) contains an Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment. The assessment identified the following natural heritage resources within the study area, which included the Stonewall site:

- A rare plant community (Northern Hardpan Basic Oak-Hickory Forest) in two locations on the eastern and southeastern portion of the study area. The exact location of these resources was not described in the study and is not annotated on the plat;
- Suitable habitat for and the documented presence of the wood turtle (*Glyptemys insculpta*), a state-threatened species, along Sycolin Creek;
- Potential foraging habitat for two state-threatened bird species (the loggerhead shrike and Henslow's sparrow); and,
- Hairy beardtongue (*Penstemon hirsutus*), a state-rare plant associated with soils derived from diabase rock, on the northern portion of the power line easement in the central portion of the site (*Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment, Wetland Studies and Solutions, Inc., November 8, 2004*).

Because the presence of the state-listed wood turtle has been documented on the site, the applicant's wetlands consultant recommended various implementation measures, to include:

- A winter-time (December through mid-March) search to document if wood turtles hibernate within the portion of Sycolin Creek located on the project site;
- Locating any in-stream work (such as road and utility crossings) in areas that do not provide high-quality hibernation habitats;
- Placement of a time-of-year restriction on all in-stream work to avoid impacts to hibernating turtles;
- Implementation of strict adherence to erosion and sediment control measures;
- Use of bridge spans, bottomless culverts, or culverts countersunk at least six inches below the streambed to prevent barriers to the migration of aquatic organisms and allow them to pass through the culvert;
- Searches for individual wood turtles within the limits of clearing before the initiation of any construction in areas of suitable habitat and the relocation of any wood turtles found during the search; and,

- Provision of educational materials to contractors working in areas of potential wood turtle habitat to make them aware of the possibility of wood turtles on the site and to familiarize them with the species' appearance, status, and life history (*Memorandum, Wetland Studies and Solutions, Inc., September 22, 2006*).

For a previous larger rezoning application (ZMAP 2005-0028, Creekside), which included all of the Stonewall site and other lands, the Department of Conservation and Recreation (DCR) reviewed the project (dated January 18, 2006) and recommended that the application preserve the Northern Hardpan Basic Oak-Hickory significant communities. DCR also recommended that the applicant conduct additional surveys of suitable habitat for rare diabase species in June 2006 and coordinate with the Virginia Game and Inland Fisheries (VDGIF) and the U. S. Fish and Wildlife Service (USFWS) regarding compliance with protected species legislation. Because the previous habitat survey covered a larger area than the current application, the location of the Northern Hardpan Basic Oak-Hickory community is unclear.

The siting of the proposed power plant would impact plant and wildlife habitats. The plat does not address impacts to these resources or anticipated mitigation measures.

Staff recommends that the applicant verify the location of the Northern Hardpan Basic Oak-Hickory community. The applicant should also verify whether additional surveys of suitable habitat for rare diabase species were conducted, as recommended by DCR, and coordinate with the VDGIF and the USFWS regarding compliance with protected species legislation. Staff recommends that the Northern Hardpan Basic Oak-Hickory community be preserved, that the applicant identify the community on the plat, and that applicant specify and commit to protection measures. Staff also recommends that the applicant preserve and buffer suitable habitat for the wood turtle, the loggerhead shrike, Henslow's sparrow, and the hairy beardtongue. The applicant should commit to implementation measures recommended by the applicant's consultant for the wood turtle. The applicant should also incorporate indigenous vegetation into the landscape design and utilize a compact, concentrated development pattern.

Applicant Response
The Applicant will use native species in the future landscaping for the Subject Property.

The wood turtle potential habitat generally occurs along fast moving streams and over summer in the floodplains of their wintering streams. The Applicant is not proposing to construct within the wetlands areas. An improvement of the existing Gant Lane crossing will be required to properly access the site and can

be accomplished, with VDOT approval, utilizing a bottomless culvert or other spanning structure.

The Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment prepared by Wetlands Studies and Solutions, Inc. and dated November 8, 2004, states the following:

"The Loggerhead Shrike no longer occurs as a regular breeder in this vicinity of the State and very few pairs nest anywhere in Loudoun County." It continues to state that there is a low probability that it occurs within the area. The entire site is encompassed within Sheet 2 of this study attachment; this area is not identified as a Loggerhead Shrike habitat."

The Henslow's Sparrow is no longer recorded annually in northern Virginia during the breeding season. This extreme rarity makes it highly improbable that it occurs in the Subject Property. The entire site is encompassed within Sheet 2 of the Wetlands Studies and Solutions study attachment; this area is not identified as a Henslow's Sparrow habitat.

Wetlands Studies and Solutions identified one area of potential diabase plant habitat within the area of the Subject Property, WSSI photo 4. The caption of photo 4 states no rare diabase plants were observed during the fieldwork. The area identified is also within the Dominion Power transmission line easement that is cleared and maintained for access, safety and to protect the electrical transmission lines and prevent outages.

The Subject Property contains a portion of an Oak/Hickory forest on the eastern and western areas. The area on the eastern side will be cleared only to the extent necessary for the construction of the Hybrid Energy Park facilities, the area on the western side of the Subject Property will not be in the construction areas, this area will be preserved as shown on the revised enclosed plans. The area adjacent to the western stand will be replanted with native species plants.

Historic Resources

The related rezoning application for the Stonewall Secure Business Park (ZMAP 2008-0017, et alia) includes a Phase 1 archaeological survey for the subject property. The plat identifies areas of identified archaeological and historic resources within the limits of the proposed Special Exception. Staff's review of the submitted report will be sent under separate cover.

SITE DESIGN

Open Spaces

The applicant's proposed open space system appears to consist of a 50-foot perimeter buffer and the floodplain along the northern border of the site (see previous River and Stream Corridor Resources section). No areas are formally designated as open space. County policies anticipate 70 percent of the site area as open space.

To ensure compatibility and meet the intent of the Transition Policy Area as a visual and spatial transition from the Suburban Policy Area to the Rural Policy Area, County polices anticipate a contiguous open space system incorporating environmentally sensitive features, culturally significant sites, and other Green Infrastructure elements that form a contiguous network, incorporate pedestrian trails, and enhance the area's river and stream corridors. Perimeter buffers, unless designed in conjunction with Green Infrastructure elements, do not generally satisfy open space needs. The current application does not contain enough information to evaluate whether the open space elements will be protected, connected, incorporate environmentally sensitive features, or help to buffer neighboring residential uses. Additionally, if the site were to develop as a power plant within a secure business park, the application does not address security measures and implications for open space, trails, and connectivity and views from adjacent properties.

The proposed area and quality of open spaces do not adequately fulfill the intent of County policies. Staff recommends that the applicant develop a contiguous open space system comprising 70 percent of the site area, encompassing and enhancing significant elements of the Green Infrastructure, and forming the predominant visual feature of the landscape. Priority should be given to natural areas along Sycolin Creek, drainageways, wetlands, steep slopes, moderately steep slopes, forest resources, stream corridors, and other natural areas to protect drinking water resources, along with historic and archaeological resources (see previous Green Infrastructure discussion). Open spaces should be designed to mitigate views from public rights-of-way and buffer neighboring residential properties. Open spaces should connect with those of the larger business park.

Applicant Response

Tree preservation areas that are contiguous with the RSCOD and Stream Valley Buffer areas have been added to the plans. Additionally, there is a 50 foot yard around the perimeter of the Subject Property which will add to the open space areas. The intent of the 70 percent open space is applicable to clustered residential development and is not appropriate for non-residential uses such as the proposed Hybrid Energy Park.

Stormwater Management

To protect water resources and the integrity of neighboring properties, the Revised General Plan calls for low impact development (LID) techniques, which integrate hydrologically functional designs with methods for preventing pollution (*Revised General Plan, Chapter 5, Surface Water Policies, Surface Water Policy 2*). LID approaches seek to control runoff discharge, volume, frequency, and quality in order to mimic predevelopment runoff conditions through a variety of small-scale site design techniques. LID techniques can help reduce sedimentation and erosion, trap and remove pollutants such as nitrogen, phosphorus, metals, and organic compounds, protect wildlife habitat, store flood waters, and maintain the overall water quality of nearby streams. LID facilities should be located as close as possible to impervious areas and utilize the landscape and soils to naturally move, store, and filter run-off. The associated flow reductions and water quality improvements can then benefit the receiving streams. LID techniques include:

- Permeable paving;
- Porous concrete;
- Native landscaping enhanced through the routing of runoff through these areas;
- Rain gardens;
- Native-vegetated drainage swales for the movement and temporary storage of runoff;
- Vegetated filter strips that slow runoff speed, trap sediment and pollutants, and provide additional water absorption;
- The collection and use of rooftop runoff for irrigation; and,
- Green roofs.

The application does not include information regarding Low Impact Development methodologies.

Given that the property is adjacent to Sycolin Creek, staff recommends that the applicant demonstrate that the most efficient pollutant removal BMPs will be used, that existing drainage patterns and hydrology to wetlands will be maintained, and that low impact development (LID) techniques such as bioretention and sheet flow to vegetated buffer areas will be implemented. Staff recommends stormwater treatment measures that mimic the pre-development conditions of the site, mitigate impacts to the watershed, and treat the stormwater runoff as an amenity visible to employees. The applicant should consider various site measures, such as permeable pavers, porous concrete, cisterns, planted swales, curb cuts, rain gardens, and bioretention filters adjacent to impervious areas, to promote infiltration on-site, minimize peak storm flows, and help filter non-point source pollutants. Pipe installation should be minimized.

Applicant Response

One-third of the site will be impervious with crushed stone or similar material to provide access to equipment for maintenance, with the exception of the driveways, foundations, parking area and the administration building.

The existing drainage patterns and hydrology to wetlands will be maintained within the areas that are not disturbed. The existing pond will be utilized for purposes of water quality and will be improved to meet the requirements of erosion and sediment controls and the stormwater management requirements. Surface water and stormwater discharges will be regulated under a DEQ issued VPDES permit.

Quarry Compatibility

Properties to the east of the site have been proposed as future quarry expansion areas for the Luck Stone Quarry (ZMAP 2009-0003, Luck Stone Quarry). One of the parcels has also been proposed for a co-located water treatment plant (ZMAP 2009-0004, Loudoun Water and Luck Stone Quarry). Expansion of the Luck Stone quarry into several nearby parcels was most recently approved in 1991 and 2001 (SPEX 1990-0019, Luck Stone Corporation and ZMAP 1999-0004 & SPEX 1999-0006, Luck Stone Leesburg Plant).

Staff recommends that the applicant explore the scope and the scale of existing and future quarry operations to ensure that the proposed power plant is compatible with these operations, including blasting and the associated air and ground vibration.

Applicant Response

The Applicant has met with Luck Stone several times and determined that the Hybrid Energy Park facilities will be compatible with the future quarry operations.

Streetscape & Land Use Arrangement

With the exception of a potential emergency access connection from Gant Lane, the power plant does not have access to a public right-of-way. The applicant proposes two access points onto Sycolin Road for the larger Stonewall Business Park and a rudimentary internal road network that connects in two places to the Special Exception area. The ultimate location and condition of the roads surrounding the larger Stonewall Business Park are not depicted on the plat. The applicant has not explained how the proposed power plant would access Sycolin Road if the Business Park is not approved and developed prior to the development of the power plant.

Staff recommends that the applicant provide further information regarding access to the proposed power plant from Sycolin Road, including the disposition of roads within the Stonewall Business Park and external roadways.

Applicant Response
Access to the Hybrid Energy Park will be from Gant Lane by a secured entrance and the site will be secured by a chain link fence that will surround the site.

Building Scale & Form
The applicant has provided a plan view with possible locations for various power plant facilities. The applicant has not provided information regarding facility heights, massing, landscaping, scale, intensity of use, or design characteristics. Further, a general description and location of trees, shrubs, grasses, perennials, depressed parking areas, and/or berms to be used throughout the site would help determine whether the landscaping and buffering is adequate to help ensure compatibility with the surrounding uses and to assess the visual impact of the project. Modeled views of the proposed facilities from surrounding areas have not been provided.

Staff recommends that the applicant provide further information regarding site facilities, landscaping, scale, intensity of use, and design characteristics, to include site design and building design. Staff recommends that the applicant provide modeled views of the proposed facilities from the surrounding areas.

Applicant Response
Additional information is being provided on the plans with this submission including heights of the various components, landscape buffers, tree preservation areas, fencing, location of the parking and loading areas and travelway locations. The Applicant has included an exhibit sheet that shows typical elevations, photographs and drawings of natural gas fueled combined cycle primary power units and natural gas fueled simple cycle peaking units that may be installed at the Hybrid Energy Park. Photosimulations will be provided that will demonstrate what the Hybrid Energy Park may look like from the surrounding areas.

Staff recommends that all buildings and parking be screened and the development camouflaged behind open space with less intensity adjacent to sensitive uses, such as river and stream corridors and residences. Given the proximity of residential uses to the west of the Special Exception area, additional details are needed to determine whether the proposed use is compatible with these residences, such as plan views, cross-sections, and viewshed perspectives.

Applicant Response
The tree preservation area on the western side of the site will provide a natural buffer and the topography will screen the Hybrid Energy Park from the residential uses along Sycolin Road. The residences are approximately 2,000 feet from the Hybrid

Energy Park. As stated above, the Applicant will provide exhibits of the Hybrid Energy Park facilities from the surrounding areas.

For building design, staff recommends that the applicant avoid the use of continuous plane building surfaces, wherever practicable, and break up large building segments into smaller segments through the use of fenestration and setbacks.

Applicant Response
Acknowledged.

Noise Impacts
Noise-sensitive uses surrounding the project site include residences to the west, park lands to the north, and surrounding areas zoned TR-10 and JLMA-20. Staff notes that Section 5-1507 of the Zoning Ordinance contains regulations regarding noise levels. The applicant has not provided information regarding the expected noise generation of uses within the site.

Staff recommends that a noise analysis be conducted and provided to the County documenting the predicted cumulative noise impact of all on-site activities on the surrounding residential uses and other areas zoned TR-10 and JLMA-20. The applicant should provide information regarding the location, number, noise levels, testing, and expected use of facilities on the site.

Applicant Response
The Hybrid Energy Park facilities will comply with the requirements contained in the Zoning Ordinance. The major noise producing facility equipment, i.e., combustion turbines and steam turbine, as well as certain other equipment will be designed with noise attenuating features as necessary to meet these requirements.

Lighting & Signage
The applicant did not provide information regarding lighting or signage. Lighting and signage are especially important given the project's proximity to residences and the character of the area as a low-density part of the Transition Policy Area. Staff anticipates that a utility plant would incorporate lighting to meet Occupational Safety and Health Administration (OSHA) requirements for smokestacks, catwalks, heat recovery units, turbines, and all buildings. Staff also notes that directional and interpretive signage within the site could alert people to the presence of sensitive natural features and historical resources.

Staff recommends that the applicant commit to lighting that is fully shielded, provides a glare-free environment, is confined to the site, and is turned off after business hours, unless required for safety or security purposes, and that illumination levels will be no greater than necessary for a light's intended purpose. All lighting should be mounted as low as practicable and designed to preclude light trespass onto adjoining properties, glare to passersby, skyglow, and deterioration of the nighttime environment. Staff recommends that the applicant provide information regarding the lighting to be used for smokestacks, catwalks, heat recovery units, turbines, and all buildings.

Applicant Response
The Hybrid Energy Park lighting and signage will comply with the Zoning Ordinance. The facilities will require external lighting to allow for safe operations, including elevated catwalks, HRSG and turbine facilities. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facility will be designed to enable outdoor lighting for distinct areas of the facilities to be switched off while not in use or not required for safety considerations.

COMMISSION PERMIT

Staff is unable to provide a recommendation for the Commission Permit until the other issues are resolved. Staff recommends that these issues be satisfactorily resolved so that staff can access whether the general location, character, and extent of the proposed use is in substantial accord with the Comprehensive Plan.

RECOMMENDATION

The application proposes a use unanticipated within the Lower Sycolin subarea. The applicant has not offered sufficient information to effectively assess the proposal and its impact on site resources and surrounding uses or explained why other locations in the County are unsuitable.

Applicant Response
With this submission the Applicant is providing information to address Staff comments and will continue to provide additional information to assist Staff in effectively assessing the proposed Hybrid Energy Park applications. The proposed location for the Hybrid Energy Park is ideal due to the reasons stated previously.

Staff recommends that the applicant demonstrate how the application will effect a visual and spatial transition between the Suburban and Rural Policy Areas and how the proposal is appropriate for the Lower Sycolin subarea of the Transition Policy Area with

particular attention to air quality and elements of the Green Infrastructure. As a minimum, staff would expect the applicant to provide elevations, sections, building envelopes, annotate internal resource protection areas on the plat, and describe how the design and intensity of the development effect a visual and spatial transition between the Suburban and Rural Policy Areas. Illustratives depicting facilities, buildings, and landscape details should also be provided and the application should address the relationship of the proposed uses to the nearby residences.

Applicant Response
Acknowledged. Please see the responses above.

Additionally, although the proposed Hybrid Energy Park is within the Transition Policy Area it is actually between the planned extractive land uses, the Town of Leesburg and the Suburban Policy Area. It is not located near the Rural Policy Area making the proposed location even more unique.

With regards to elements of the Green Infrastructure, staff is particularly concerned with air quality, the impact on Sycolin Creek, historic and archaeological resources, forest resources, steep slopes, moderately steep slopes, wildlife habitat, and wetlands. Some of these environmental issues could be addressed if 70 percent of the site were retained as open space, as recommended in County policies.

Applicant Response
The will be no impacts to the historic and archeological resources and these resources are identified on the plans. There will be no process water discharge and no negative impacts to Sycolin Creek. The wetlands will not be impacted with the exception of the areas where the access to the site will be improved and improvements to the existing pond for stormwater management and water quality. The wildlife habitat will be preserved within the areas adjacent to Sycolin Creek and the floodplain and the tree preservation areas. There will be impacts to the remainder of the site and these impacts will be minimized to the extent feasible.

Staff also recommends that the applicant combine the current application with the associated Stonewall Secure Business Park (ZMAP 2008-0017, et alia).

Applicant Response
For reasons stated previously, the applications for the Hybrid Energy Park and the Stonewall Secure Business Park have been separated.

LOUDOUN COUNTY DEPARTMENT OF PLANNING – COMMUNITY INFORMATION & OUTREACH (HEIDI SIEBENTRITT, 6/1/2009)

Analysis

Staff has reviewed the Phase 1 Archaeological Survey Report prepared by Thunderbird Archeology, dated October, 2005. The 2005 survey and resulting report relate to the former 652 acre Ridgewater Creek application. The current application includes 294 acres of the 652-acre area represented in the report. Staff has also reviewed the September 2006 Archaeological Evaluation of Site 44LD1195 prepared by The Louis Berger Group, Inc. This report was completed as part of an impact study conducted for proposed improvements to Sycolin Road. Portions of site 44LD1195 were identified on both the east and west sides of Sycolin Road and are within the project area.

Prior to the Phase 1 survey conducted for ZMAP 2005-0028 in 2005, one archaeological site, 44LD1195, and two architectural resources, 053-5277 and 053-5278 had been recorded on the subject property. In addition, the 2005 Phase 1 survey produced 10 newly identified archaeological sites designated as sites 44LD1321-44LD1330. These sites represent both prehistoric and historic land use of the area over a roughly 8,000 year period. Five of the sites identified as part of the 2005 survey as well as previously recorded site 44LD1195 and architectural resource 53-5278 are located within the current proposed project area.

Applicant Response

These responses address the sites and resources that are located within the Hybrid Energy Park Subject Property including archeological sites #44ID1326 and #44LD1328 and architectural resources 053-5278 (barn). The other resources referenced in the comments are not located within the Hybrid Energy Park.

Site 44LD1195 – Early 19th Century Pottery

The most significant resource identified on the subject property is the site of an early 19th century pottery industry, site 44LD1195. This site was evaluated at the Phase 2 level by the Louis Berger Group, Inc. as part of an impact study conducted for proposed improvements to Sycolin Road. The site was identified on both sides of Sycolin Road. The Phase 2 investigation confirmed that the portion of the site east of Sycolin Road is eligible for the National Register of Historic Places. This is the portion of the site that will be impacted by the proposed development, described as "Area M" in the Phase 1 report.

Site 44LD1195 is truly a unique and important archaeological site with tremendous future research potential, worthy of protection and conservation. The site has been interpreted as an early 19th century pottery kiln site which produced both stoneware and redware vessels. The site also includes the remains of a domicile associated with the pottery industry. The site represents a previously unknown pottery industry that likely links to potteries in both Alexandria and the Shenandoah Valley. Researchers have analyzed artifacts from the site and conducted research on the design and manufacturing methods employed at the Sycolin pottery. Ceramic vessels now in a private collection have been attributed to the site. These vessels are considered to be national museum quality pieces. The research that has already been conducted on this site will re-write the history of ceramic production, commerce and trade in the Mid-Atlantic region.

Given the significance of this site, every effort should be made to ensure that it is conserved in place and protected through easement in perpetuity. As noted above, the Heritage Preservation Plan specifically states that the County's primary objective is the protection and conservation of significant archaeological resources identified during the development process (*Heritage Preservation Plan, Chapter 2, Archaeological Resource Policy 9*). The current CDP proposal shows that site 44LD1195 will be impacted by the construction of "entrance #1 as shown on sheet 5 of the CDP. Along the entrance, vegetative berms are proposed. The construction of the entrance, and berm as proposed, as well as any necessary improvements to Sycolin Road will destroy site 44LD1195.

Applicant Response
This site is not located within the Hybrid Energy Park Subject Property.

Sites 44LD1326, 1328, 1329 and 1330 - Historic Lower Sycolin Settlement
Archaeological sites 44LD1326, 44LD1328, 44LD1329 and 44LD1330 were identified as part of the 2005 Phase 1 survey and are located within the proposed development area. These sites have been interpreted as late 19th to early 20th century domestic sites representative of a village known as "Lower Sycolin". The Lower Sycolin community was settled by emancipated African Americans sometime after the Civil War. This historic community is still marked by the Sycolin Church and a few frame houses along Sycolin Road.

The consultant has recommended that none of these sites are eligible for listing on the National Register of Historic Places due to the level of ground disturbance around the sites and the fact that only remnants of the homes and outbuildings remain. The proposed development will impact each of these sites. While the individual resources may not be National Register eligible, the history of the historically African American Lower Sycolin community represented by these archaeological sites is compelling and worthy of research for public benefit as called for in Chapter 2, of the Heritage Preservation Plan (*Archaeological Resource Policy 4*).

Applicant Response
Site 44LD1326 is predominantly located within the overhead powerline easement area in the southeastern portion of the Subject Property. Site 44LD1328 is generally located adjacent to the smaller pond near Gant Lane in the northern portion of the Subject Property.

Recommendations

Site 44LD1195 – Sycolin Pottery
Specific to site 44LD1195, staff recommends that every effort be made to conserve this significant resource in place. This would require the reconfiguration of the proposed access points into the development from Sycolin Road and coordination with VDOT regarding road improvements on this section of Sycolin Road. Future draft proffers should include language which reflects the following mitigation strategies:

1. Conservation of the site must be planned for during construction. To this end, staff recommends that demountable metal fencing (long fence type) be erected around the perimeter of the site to include a minimum 50 foot buffer on the northern, southern and eastern edges of the demarcated site. Because the boundaries of the site were determined several years ago by The Berger Group in 2006, the known boundaries of the site should be re-located by a professional archaeological consultant or by the County Archaeologist prior to any ground disturbance near the site.

Applicant Response
Site 44LD1195 is located along Sycolin Road and not within the Subject Property of the Hybrid Energy Park.

2. This site is eligible for listing in the National Register of Historic Places and a formal nomination to have the site listed is an appropriate next step. National Register nominations are generally prepared by a consultant. Nominations are submitted to the Virginia Department of Historic Resources for consideration. Although listing in the Register is honorific, it would be representative of the level of significance the Sycolin pottery site holds.

Applicant Response
See above.

3. To ensure that the site is conserved in perpetuity, staff strongly recommends that an easement be placed on the site. There are various organizations that will take such easements, such as the Archaeological Conservancy, a national non-profit organization whose mission is to protect significant archaeological resources in place in perpetuity. The Conservancy has recently acquired a significant prehistoric property in the County.

Applicant Response
See above.

4. If it is determined that 44LD1195 cannot be conserved, Phase 3 (full data recovery) excavation is warranted. Because of the significance of the pottery site, the scope of work for the Phase 3 should be reviewed and approved by the County Archaeologist prior to commencement of the excavation. Upon completion, the Phase 3 report should be submitted to the County and to the Virginia Department of Historic Resources for archiving.

Applicant Response
See above.

5. As noted earlier in the referral, Chapter 5 of the Revised General Plan calls for an impact mitigation plan for significant resources identified during the archaeological survey of a property proposed for development. Chapter 2 of the The Heritage Preservation Plan states that research and findings associated with archaeological surveys should be conveyed to the public. In addition to the Phase 3 technical report, staff requests that a discrete, concise narrative history of the site (Including photographs of excavations, artifacts and historic maps) be completed for public education purposes. The narrative history should be given to the County in hard copy and in digital format. A hard copy of the report should be sent to the Thomas Balch Library in Leesburg for the benefit of historians, researchers and the general public.

Applicant Response
See above.

Sites 44LD1326, 1328, 1329 and 1330 - Historic Lower Sycolin Settlement
The history of the area bounded by Cochran Mill Road, Sycolin Road and Goose Creek is important in the context of post-Civil War reconstruction and African-American history in Loudoun County. Sycolin is one of 30 identified late 19th century historically African American settlements in the County. Staff recommends that the Sycolin settlement, represented by the above archaeological sites, be interpreted for the general public. To mitigate impacts to these sites, staff recommends that a concise, well researched narrative history of the historically African American community of Lower Sycolin be produced for the purposes of public education. Graphics, including historic maps and historic and current photographs should be included. As a point of departure for the research, staff can make available the *Loudoun County African-American Architectural Resources Survey*, prepared for the County by History Matters, LLC in 2004. This report references the community of Sycolin and some of the architectural resources visible from Sycolin Road which relate to that community. Three hard copies of the narrative and one electronic copy should be delivered to the County upon completion.

Applicant Response
As stated above only Sites 44LD1326 and 44LD1328 are located within the Hybrid Energy Park Subject Property.

Coordination with VDHR
The application materials submitted suggest that permits from the Army Corps of Engineers may be required for this project. If this project requires federal permits or will use federal funds, the development proposal will be reviewed by the Virginia Department of Historic Resources (VDHR) per Section 106 of the National Historic Preservation Act of 1966 (as amended). Impacts to resources listed in, or eligible for, the National Register of Historic Places may require mitigation per VDHR. It is important to note that VDHR will make the ultimate determination regarding National Register eligibility for all affected resources. Therefore, no action should be taken to impact or mitigate impacts to any cultural resource on the property until VDHR is consulted.

Applicant Response
As stated above only Sites 44LD1326 and 44LD1328 are located within the Hybrid Energy Park Subject Property.

Staff recommends that the applicant consult with VDHR as early as possible to ensure that any impact mitigation proffered to the County as part of an approval of this application is consistent with VDHR's requirements under Section 106.

Applicant Response
See above.

LOUDOUN COUNTY DEPARTMENT OF BUILDING & DEVELOPMENT – ENVIRONMENTAL REVIEW TEAM (WILLIAM MARSH, 5/21/2009)

Issues related to the Zoning Ordinance (ZO) and Facilities Standards Manual (FSM):

1. ERT has provided various water quality, tree conservation, and steep slope preservation recommendations on the related rezoning application, related to ZO Sections 6-1310(H). While these comments apply in general to this application, staff provides the following water quality recommendations related to the proposed uses:

    - Stormwater and any process water leaving the site and entering Sycolin Creek should not change the temperature of Sycolin Creek, in order to protect existing plant and animal species. Staff recommends a commitment to monitor and treat water discharges to not damage Sycolin Creek.

Applicant Response
No process water generated by the Hybrid Energy Park will be discharged from the site and the stormwater will be regulated by the requirements of Loudoun County and the Virginia Pollution Discharge Elimination System ("VPDES") permit that is regulated by DEQ.

- Chapter 5 of the FSM recognizes water quality risks posed by hotspot uses, including fleet storage, vehicle maintenance areas, and chemical storage. See Section 5.320.E. Staff recommends disclosure of all related uses that quality as hotspot uses and commitments to treatment of these uses as part of the special exception approval.

Applicant Response
In accordance with FSM Section 5.320.E., the Applicant is required to implement a stormwater pollution prevention plan as an industrial site. The specifics of this stormwater pollution prevention plan will be determined during the site plan review process. A VPDES permit is also required and will be issued by DEQ, which further regulates water quality.

- Staff recommends depicting wetlands and waters of the United States as approved by Jurisdictional Determination number 05-R2064, dated November

18, 2005. This includes distinguishing between perennial, intermittent and ephemeral streams. Please be advised that Loudoun County is considering adoption of a Chesapeake Bay Preservation Act, including the requirement of a 100-foot buffer adjacent to all perennial streams, water bodies, and wetlands contiguous to perennial streams and water bodies.

Applicant Response
The only impacts to wetlands on the site may be for the improvements to Gant Lane the road crossing of Sycolin Creek, and improvements to accommodate the upgrade of the existing pond for water quality purposes. As requested, the wetlands and waters approved by the above referenced Jurisdictional Determination have been added to the plans.

2. Noise effects related to this application need to be clearly understood, consistent with ZO Section 6-1310(C). Staff recommends the submittal of a noise analysis that accounts for the combined effects of base load energy generation, peak energy generation, and any emergency generation requirements, in addition to noise emanating from the related uses proposed with the rezoning application.

Applicant Response
The Applicant will comply with Section 5-1507 of the Zoning Ordinance.

3. ZO Section 6-1310(H) also requires consideration of air quality, where Loudoun County is included in a non-attainment area of the Clean Air Act due to ozone pollution. Natural gas facilities emit Nitrous Oxide, Carbon Monoxide, Particulate Matter, Volatile Organic Compounds, and Sulfur Dioxide, all of which contribute to ozone pollution. Staff recommends further explanation of measurements and remediation required by this application to mitigate these pollutants, including but not limited to "Prevention of Significant Deterioration" permits, air quality modeling analysis, and technologies like selective catalytic reduction.

Applicant Response
The Hybrid Energy facility will utilize air pollution equipment that represents the best technology available in the United States today, including oxidation catalyst to control CO and dry low-NOx combustion systems and selective catalytic reduction system to control NOx. The Virginia DEQ has responsibility for issuing air pollution permits for the Hybrid Energy facility. A construction permit must be issued before the commencement of any construction activities on site. There are several different types of air analysis that must be completed in order to obtain the air permit for this facility:

- ***A prevention of significant deterioration ("PSD") analysis for NOx emissions***

- ***A new source review ("NSR") analysis for the pollution ozone and precursor nitrogen oxides***
- ***A minor source permit will be needed for the pollutants PM10, sulfur dioxide, carbon monoxide and volatile organic compounds***

Any emission offsets for NOx will be obtained from other existing sources in the metropolitan Washington DC area, as determined by DEQ. The Environmental Protection Agency ("EPA") has developed their Appendix S policy for obtaining offsets which has been used on many occasions to facilitate growth in non-attainment areas.

The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, provides additional information.

Issues related to the Revised General Plan:

4. The proposal to extend treated, sanitary effluent from the Town of Leesburg treatment facility coincides with a Loudoun Water-proposed intake to the Potomac River that will be piped, stored, and be treated close proximity to the Stonewall site. Staff notes that two uncoordinated pipe networks can disturb natural areas. Consistent with General Water and Wastewater Policy 12 and Energy and Communication Policy 1 of the RGP, staff recommends co-location of any Stonewall lines with proposed Loudoun Water lines. Staff also recommends consideration of combined water conveyance, so that only pipe network for the Stonewall and Loudoun Water projects is needed.

Applicant Response
The Applicant will discuss joint trench and collocation of pipe with the Town of Leesburg, Loudoun Water and Luck Stone. All work will be in compliance with the regulations of each utility and the VA DEQ.

5. Staff has recommended tree preservation with the related ZMAP application. Staff furthers this recommendation for preserving tree stands adjacent to the power system as a visual buffer, consistent with Energy and Communication Policy 2.

Applicant Response
In accordance with Section 5-1414 of the Zoning Ordinance, the Applicant will install a Type 4 landscape buffer around the Subject Property. As a supplement to this buffer and as shown on the plat, there will be a minimum 50 foot tree save area along the northern property line and along Gant Lane, with the exception of the electrical transmission lines, gas line easements area and other utility rights

of way. The site will be enclosed with fencing and contain a secure entrance. In the areas where the solar array are located, trees are not compatible with the collection of solar radiation and the landscaping will be modified to meet the intent of the Zoning Ordinance accordingly.

6. The applicant's statement of justification describes an increasing demand for energy in the region and the energy efficiency gains associated with producing electrical supply in close proximity to the demand. Electricity produced by this project that is available to the grid assists the RGP's stated goal of supporting "timely delivery of these services to businesses and households as development occurs..." (page 2-23) To verify this potential benefit, staff recommends that the Planning Commission receive a verifiable calculation of the difference between the energy produced by this application and the energy required by the project's special exceptions and related rezoning applications.

Applicant Response

The Stonewall Secure Business Park applications have been separated from the Hybrid Energy Park applications. Current designs for data centers are utilizing 150 to 200 watts per square foot as a design guideline. If 1 million square feet of data center uses were to locate within Loudoun County and 50% of the data center space was used for data center storage at 2 watts per square foot then 100 MW of electricity would be required. Loudoun Water will consume 1.1 to 2.2 MW of electricity with its proposed water treatment plant.

7. Besides energy efficiency gains, the statement of justification recognizes the environmental benefits of more energy efficient production of electricity from combined cycle natural gas turbines and from solar photovoltaic generation. The RGP does not prioritize one form of energy production over another, and thus does not compare environmental effects of electricity generation from coal, nuclear, natural gas, solar, and other resources. Further, the RGP does not encourage this land use type in the transition area, as described in the Community Planning referral. Finally, the RGP does commit to "developing and implementing a comprehensive utilities plan to address the impacts and location requirements of energy and communications facilities." (p.2-24) To date, this plan has not been pursued. Based on these factors, ERT recommends consideration of an RGP amendment or "comprehensive utilities plan" that addresses this proposed use in the transition area while also updating the RGP to account for the relationship between climate change and the energy consumed and used in Loudoun County.

Applicant Response

Even though the RGP did not contemplate the location of a facility such as the proposed Hybrid Energy Park in the transition area, the facility will protect the quarries from residential encroachment and the proposed location is well suited for the Hybrid Energy Park.

In locating an electrical power producing facility three components must be available, i) electrical transmission facilities, ii) fuel and iii) water. The Hybrid Energy facility is proposed to be located on property that contains two 230kV and one 500kV electrical transmission lines owned by Virginia Dominion Power and operated through PJM. Two main high pressure natural gas lines also traverse the property, one extends from the Gulf of Mexico and the other from the Ohio Valley. These natural gas lines connect to the main north-south Transco natural gas line and also connect to the Coles Point, Virginia LNG port. Since the source of these natural gas lines are from different geographical areas, there is a backup source of natural gas In the event that one of the gas lines is disabled. Therefore, the proposed Hybrid Energy Park is sited in a unique location that provides the needed components.

Additionally, the location of the quarries, the proposed Loudoun Water water treatment plant and the airport overlay district make this property not suitable for many uses that are contemplated in the RGP.

8. Staff recommends consideration of a closed loop ground source heat pump for the proposed administration building that could be looped under the adjacent pond, to improve energy efficiency.

Applicant Response
The Applicant is studying the feasibility of CHC (Combined Heat and Cooling) process for utilization in the area. The Applicant will not be using the existing pond which flows into Sycolin Creek as a thermal heat sink since it could possibly have deleterious effects on the creek by raising water temperatures. The existing pond will be improved as a stormwater management pond for water quality. No process water will be discharged on site; it will be recycled and reused nearing zero discharge.

9. The application includes a commitment not to use fuel oil as a backup energy source, which is typically regulated by the Department of Environmental Quality (DEQ). Staff inquires into the backup fuel source to be used in lieu of oil.

Applicant Response
The back up energy source will be natural gas, since the site contains two high pressure natural gas lines that are from different geographical areas. In the event that one of the gas lines is disabled there is a back up source of natural gas.

LOUDOUN COUNTY DIVISION OF ENVIRONMENTAL HEALTH (MATTHEW TOLLEY, 4/9/2009)

The Health Department recommends approval of this application. According to the application, the proposed development will utilize public water and sewer. The septic field and well serving the remains of an abandoned house on PIN 193-38-4362 will have be properly abandoned following application for and issuance of free permits. The plat reviewed was prepared by Gordon & Associates and was revised 30 March 2009.

Attachments Yes ___ No_X

Applicant Response
The septic field on the Subject Property will be properly abandoned, prior to construction of the Hybrid Energy Park. The existing well may be improved to provide potable water and water for non-cooling tower use.

LOUDOUN COUNTY DEPARTMENT OF GENERAL SERVICES (BOYD CHURCH, 4/22/2009)

The Dept. of General Services has reviewed the above referenced project. The existing ponds will need retrofitting to current standards if they are proposed for stormwater management.

Applicant Response
The existing pond will be used for stormwater management and will be retrofitted to the current standards and requirements.

LOUDOUN COUNTY DEPARTMENT OF FIRE, RESCUE & EMERGENCY MANAGEMENT (MARIA TAYLOR, 5/5/2009)

The Fire-Rescue GIS and Mapping coordinator offered the following information regarding estimated response times:

PIN	Project name	Leesburg VF-RC Travel Time
193-49-0539	Hybrid Energy Park Stonewall Secure Business Park	7 minutes, 47 seconds (fire) 8 minutes, 45 seconds (rescue)

The Travel Times for each project were calculated using ArcGIS and Network Analyst extension to calculate the travel time in minutes. To get the total response time another two minutes were added to account for dispatching and turnout. This assumes that the station is staffed at the time of the call. If the station is unoccupied another one to three minutes should be added.

Project name	Leesburg VF-RC Response Times
Hybrid Energy Park Stonewall Secure Business Park	9 minutes, 47 seconds (fire) 10 minutes, 45 seconds (rescue)

Staff respectfully requests that the Applicant contact the first due fire and rescue company to discuss their emergency operations plan to include the evacuation plan prior to occupancy. A guided visit to the site from F/R personnel can also assist emergency responders with their pre-planning for response to the facility. In addition

the applicant must demonstrate adequate access and circulation of emergency vehicles throughout the facility.

Applicant Response
Contact information and procedures for fire and rescue, and other appropriate emergency response teams will be included in the facilities operating procedures to be developed prior to commencement of operations. These plans will be reviewed with appropriate Loudoun County Department of Fire and Rescue personnel prior to operations of the facilities.

LOUDOUN WATER (JULIE ATWELL, 5/18/2009)

- The application does not state the source of water or sanitary sewer service. However, should service be needed from Loudoun Water's central system, availability is as per our response of April 17, 2009 on ZMAP-2008-0017 (Stonewall Business Park).

Applicant Response
The Applicant has reviewed the Loudoun Water response and understands the conditions of water and sanitary sewer supply from Loudoun Water.

- The application depicts a 50-foot tree preservation area over Route 652, Gant Lane. Route 652 currently provides access to property owned by the Loudoun County Sanitation Authority (Loudoun Water), PIN 153-35-5865. It is important that this access be maintained.

Applicant Response
The plat has been revised to ensure that the 50-foot yard does not encroach onto Route 652, Gant Lane. The Applicant understands the need for access to the Loudoun Water property.

LOUDOUN COUNTY OFFICE OF TRANSPORTATION SERVICES (GEORGE PHILLIPS, 4/29/2009)

Transportation Comments

1. The proposed hybrid energy park is tied to the overall Stonewall Secure Business Park application (ZMAP 2008-0068, SPEX 2008-0068, SPEX 2008-0069 and SPEX 2008-0070) under review by the County. As such, any recommended road improvements for the proposed hybrid energy park will be included in the review of the overall Stonewall Secure Business Park. Initial OTS comments have already been released for this application (See Attachment 3).

Applicant Response

The proposed Hybrid Energy Park and the Stonewall Secure Business Park have been separated into different applications with this response letter.

2. The applicant's revised traffic letter, dated February 25, 2009, doesn't provide a separate transportation analysis and apparently relies on the November 5, 2008 traffic study for the overall Stonewall Secure Business Park from Wells & Associates. However, please note that this study did not include the hybrid energy park. It included more intense office and research & development land uses which generate significantly higher site traffic. The question is, does the applicant want to revise the traffic study to accurately reflect the hybrid energy park? Or is the applicant willing to utilize the existing November 5, 2008 Wells study, which has significantly higher site traffic, for determining transportation related improvements?

Applicant Response
The Hybrid Energy Park will employ approximately 25 people and will generate a total of 24 AM peak hour trips and a total of 26 PM peak hour trips and 89 average daily trips. As stated previously, the applications for the Hybrid Energy Park and the Stonewall Secure Business Park have been separated into different applications with this response letter.

3. The applicant's proposed conditions of approval do not include any transportation-related improvements. How and under what format will needed transportation-related improvements, such as to Sycolin Road and Cochran Mill Road, be provided to serve the site? Please clarify.

Applicant Response
Since the applications have been separated, a draft Proffer Statement has been included with this letter for the Hybrid Energy Park. The Hybrid Energy Park will be accessed by Gant Lane.

4. The proposed concept plan does not appear to incorporate the planned realignment of Cochran Mill Road southwest through the site to Sycolin Road as a four-lane road. This includes the bridge crossing over Sycolin Creek. In addition, the applicant does not appear to provide a road connection to either Gant Lane or Cochran Mill Road. In order to fulfill the CTP road network as detailed in Appendix 1 of the CTP and better distribute site traffic, this will need to be addressed in the overall Stonewall Secure Business Park application.

Applicant Response
As stated previously, the applications have been separated and the planned realignment of Cochran Mill Road does not impact the Hybrid Energy Park applications. Access to the Hybrid Energy Park will be from Gant Lane.

5. In order to accommodate the widening of Cochran Mill Road along the site frontage and within the site, the applicant needs to dedicate all planned right-of-way in keeping with the CTP for these facilities. In addition, adequate right-of-way would need to be dedicated for Gant Lane, a local road, in the event it is to be utilized to serve the proposed development. It would include 70 feet of right-of-way to accommodate the relocated Cochran Mill Road through the site. In addition, all necessary construction-related easements need to be provided, including drainage, utility and grading easements where needed.

Applicant Response
The Hybrid Energy Park does not front onto Cochran Mill Road and the necessary improvements to Gant Lane will be made to serve the Hybrid Energy Park.

6. The status of existing Gant Road needs to be clarified. It appears that this road is not planned to remain in use within the proposed development. If this is the case, a road abandonment procedure would need to be initiated by the applicant and its function replaced by a similar type of facility.

Applicant Response
The plans have been revised to more clearly show existing Gant Lane. Gant Lane is proposed to remain in use for the Hybrid Energy Park as well as for Loudoun Water to access their property where their water treatment plant is proposed to be located.

7. All entrances need to be constructed to VDOT requirements including the provision of turn lanes and adequate sight distance.

Applicant Response
All entrances and work within the road right of way will conform to the VDOT requirements.

Conclusion

The Office of Transportation Services has no recommendation at this time. OTS will provide a recommendation once the issues identified in this referral have been adequately addressed.

LOUDOUN COUNTY PARKS, RECREATION & COMMUNITY SERVICES (BRIAN FULLER, 4/29/2009)

1. PRCS notes that the subject properties are adjacent to parcels MCPI# 191-16-9866, 193-47-8662, and 193-48-6164, which has been designated as Philip A. Bolen Memorial Park and is currently under construction. The portions of these properties adjacent to Sycolin Creek have been designated for stream valley protection and public access to the stream channel.

   Staff requests more information on how the proposed power plant and its ancillary structures will visually impact the park. Portions of the park adjacent to and within the viewshed of the power plant have been designated for passive recreation and environmental enjoyment.

Applicant Response

Photosimulations will be submitted to address the visual impacts from the surrounding areas. The Hybrid Energy Park facilities will be designed with a low profile. The tallest structures, i.e., the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers running through the area. A cooling tower utilizing high-efficiency mist eliminators is included in the design. Under most conditions, the cooling tower plume or mist is expected to be limited to within the facilities property, and the probability of any adverse local effects from the cooling tower plume is negligible. The previously referenced enclosed Air Quality Study states on page 25, ". . . , the probability of occurrence of any adverse effects from the cooling tower plumes on the surrounding community is negligible."

2. Staff requests more information on any potential electronic magnetic transmission (EMT) that may be emitted by the power plant and what impact it may have on the users of the adjacent park.

Applicant Response

Unlike the existing high-voltage transmission lines, and future NOVEC substation, the Hybrid Energy Park facility is not within the Philip A. Bolen Memorial Park property and will not have an impact on the users of the park.

3. Staff requests more information about the potential transportation impacts of the project during and after construction, and how it may impact the adjacent park.

Applicant Response

The transportation impacts of the Hybrid Energy Park should have no effects on the park. The park entrance is from Sycolin Road and the Hybrid Energy Park entrance will be from Gant Lane. During construction, a delivery and traffic program will be implemented in order to reduce any conflicts. The Applicant has included a proffer to address these concerns. After construction, traffic will be

generated by approximately 25 employees spread over a three shift basis with routine deliveries to the Hybrid Energy Park.

4. The current Revised Countywide Transportation Plan (CTP) proposes Cochran Mill Road and Sycolin Road to be improved, widened, or realigned through the subject property. Please revise and/or explain this discrepancy.

Applicant Response
Gant Lane will be improved to accommodate the traffic that will be generated by the approximately 25 employees of the Hybrid Energy Park.

5. Staff notes that the proposed power plant would be in close proximity to the Luck Stone Quarries. It appears that the power plant will include a lot of gas and water piping, and Staff is concerned about how the quarry and its rock-blasting may impact the plant infrastructure.

Applicant Response
The Hybrid Energy Park facility equipment is not expected to be prone to impact damage from any blasting operation.

6. Staff requests more information on the proposed gas turbines proposed within the power plant and how they may impact the surrounding natural environment and public safety.

Applicant Response
The facility will utilize four combustion turbines each rated at 197 MW at 59°F to generate power. Two turbines will operate in combined-cycle mode. These combustion turbines will drive electric generators. Hot-exhaust gases from each of the two combustion turbines will each exhaust through a Heat Recovery Steam Generator ("HSRG"), generating steam to drive a single steam turbine and electric generator, thus increasing the total power produced to approximately 586 MW at 59°F. The units will include state-of-the-art combustion technology and control equipment to limit air pollutant emissions. Natural gas is a clean burning fuel that when combusted generated minimal particulate and sulfur oxide emissions, and has the lowest Greenhouse Gas ("GHG") emission rate of all fossil fuels. Emissions of nitrogen oxides (NOx) will be limited by the use of dry low NOx combustion system and application of a selective catalytic reduction ("SCR") control system. The SCR system will rely on a controlled aqueous ammonia injection, which consists of a solution of water (75%) and ammonia (25%). Carbon monoxide (CO) emissions will be reduced by use of a CO oxidation catalyst. The use of these controls match the most stringent controls required of any combined cycle combustion turbine in the United States. The combined cycle units are expected to operate intermittently or continuously based on seasonal demand. Two of the four combustion turbines will operate as

simple-cycle peaking units, only operating during periods of high demand for electric power, and be designed to limit their environmental impact. The peaking units will also utilize SCR to control NOx emissions during steady-state operating conditions.

The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, provides additional information.

7. Staff requests more information on the noise and light glare impacts to the surrounding natural environment that are typically associated with power plants.

Applicant Response
The Hybrid Energy Park facilities will comply with the requirements contained in the Zoning Ordinance. The major noise producing facility equipment, i.e., combustion turbines and steam turbine, as well as certain other equipment, will be designed with noise attenuating features as necessary to meet these requirements. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facility will be designed to enable outdoor lighting for distinct areas of the facilities to be switched off while not in use or not required for safety considerations.

8. Staff notes that the subject properties are in close proximity to the Leesburg Regional Airport. The Applicant should demonstrate to Staff, the Planning Commission, and the Board of Supervisors how any potential impacts to the airport (e.g., noise, light glare, building heights) will be mitigated.

Applicant Response
The proposed facility will be reviewed with the FAA for potential impacts to the Leesburg Airport flight operations. An application has been filed with the FAA. Any required lighting or other considerations as directed by the FAA will be included in the final facility design.

9. It appears that the SPEX Plat shows potential impacts to stream corridors, including major and minor floodplain. The Applicant should demonstrate to Staff, the Planning Commission, and the Board of Supervisors how any potential impacts to stream corridors will be mitigated, including any potential discharge into Sycolin Creek, which flows into Goose Creek (a state scenic river) and onto the Potomac River.

Applicant Response
No process water will be discharged onsite or into Sycolin Creek. The process water will be recycled and reused on site nearing zero discharge. RSCOD and the

stream valley buffers are clearly delineated on the revised plans. The existing pond will be improved for stormwater management and quality. The site does not drain toward the Goose Creek reservoir.

10. Staff requests additional, detailed information on the "unique hybrid process" of using wastewater to cool the facility that the Applicant mentions in their Statement of Justification. Please also provide information on how the Applicant proposes the wastewater will be piped and/or pumped from the Leesburg Sewage Treatment Plant to the proposed power plant.

Applicant Response
The facility is planning to purchase approximately 5 million gallons per day of either treated effluent from the Town of Leesburg wastewater treatment facility, or water stored in reservoirs from Loudoun Water. The water will be used as cooling water in a mechanical draft evaporative cooling tower, and to produce high quality process water for steam as part of the combined cycle unit. A portion of the cooling water from the cooling towers will be recycled and reused. Water will be pumped from the Leesburg wastewater treatment plant or from Loudoun Water by underground pipes.

11. Staff requests more information on the "voluntary open space" to be provided with this application. Staff requests that the Applicant consider dedicating a portion of the open space along Sycolin Creek to the County for purposes of stream valley park and/or trail.

Applicant Response
The Hybrid Energy Park will be a secured by a fence around the site and will have a secured access. Due to the location of the major floodplain on the Subject Property, the Applicant will work with staff on the location of the fence.

12. Staff notes that the proposed power plant is in close proximity to the NOVEC power substation recently approved on the Philip A. Bolen Memorial Park site. Staff requests more information on how this facility may impact or augment the NOVEC substation.

Applicant Response
At the present time, the proposed NOVEC substation in the Philip A. Bolen Memorial Park is not expected to impact the proposed facility. The Applicant has met with NOVEC to determine if there might be mutually beneficial design considerations.

13. Please revise Sheets 1, 2, 3, 5 and 6 of the SPEX Plat to identify and label Philip A. Bolen Memorial Park.

Applicant Response
The plan sheets have been revised to identify and label the Philip A. Bolen Memorial Park as requested.

CONCLUSION:

PRCS has identified above, several outstanding issues that require additional information to complete the review of this application.

COMMONWEALTH OF VIRGINIA – DEPARTMENT OF CONSERVATION AND RECREATION (S. RENE HYPES, 4/29/2009)

According to the information currently in our files, several rare plants, which are typically associated with prairie vegetation and inhabit semi-open diabase glades in Virginia, may occur at this location if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinksi, 1995). In Northern Virginia, diabase supports occurrences of several global and state rate plant species: Earleaf foxglove (*Agalinis auriculata*, G3/S1/NL/NL), Blue-hearts (*Buchnera americana*, G5/S1S2/NL/NL), Purple milkweed (*Asclepias purpurascens*, G5/S2/NL/NL), Downy phlox (*Phlox pilosa*, G5T5/S2/NL/NL), Stiff goldenrod (*Oligoneuron rigidum var. rigidum*, G5T5/S2/NL/NL), and Marsh hedgenettle (*Stachys pilosa var. arenicola*, G5T4/S1/NL/NL).

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at (804) 371-6206 to discuss arrangements for field work. A list of other individuals who are qualified to conduct inventories may be obtained from the USFWS.

Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Applicant Response
Acknowledged.

TOWN OF LEESBURG (SCOTT PARKER, 5/13/2009)

Recommendation: The Town feels that this first submittal application at this time does not provide enough critical information on the project to be able to garner a positive recommendation. The issues that the Town feels need to be addressed are indicated below.

It should be noted that the application does not appear to specify any design criteria, including the height of any stacks or venting apparatus. The applicant has stated that the stacks would not exceed approximately 130 feet in height, but there is no commitment to that within the application. This is a significant area of concern for the Town, in addition to the types and quantities of materials vented from said stacks, and needs to be addressed with subsequent submittals.

Applicant Response
The Hybrid Energy Park facilities will utilize four combustion turbines generators each rated at 197 MW at 59°F. Two turbines will operate in combined-cycle mode where hot-exhaust gases from the two combustion turbines will exhaust through Heat Recovery Steam Generators ("HRSG"), generating steam to drive a single steam turbine generator, thus increasing the total power to approximately 586 MW. Natural gas is a clean burning fuel that when combusted generates minimal particulate and sulfur oxide emissions, and has the lowest Greenhouse Gas (GHG) emission rate of all fossil fuels. The combined cycle units are expected to operate intermittently or continuously based on seasonal demand. Two of the four combustion turbines will operate as simple-cycle peaking units, only operating during periods of high demand for electric power, and will be designed to limit their environmental impact. The facilities will be designed with a low profile. The tallest structures, i.e. the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers running through the Subject Property. The facilities will utilize air pollution control equipment that represents the best technology available in the United States today, including oxidation catalyst to control CO and dry low-NOx combustion system and selective catalytic reduction system to control NOx. The Virginia DEQ has responsibility for issuing air pollution permits for the Hybrid Energy Park, and monitoring operations.

The plans have been revised to include the maximum heights of the various components of the Hybrid Energy Park.

Land Use:

The majority of the site of the proposed zoning amendment and special exceptions lies beyond the Leesburg joint planning area (referred to in the Town Plan as the UGA/JLMA). Nevertheless, the site is immediately adjacent to the joint planning area, and the proposed development could have substantial impacts on the area and the Town.

Conclusions:

1. **Application.** The statement of the justification for the power plant states that the plant will be a redundant source of energy "necessary for high tech and data center reliability." (p. 3) Similarly, the statement of justification for the Stonewall Secure Business Park states that it is "crucial to a secure business park" to have redundancy and resiliency of infrastructure, including "uninterrupted power system by multiple sources." (p. 4) However, the applications for the power plant and the secure business park have been submitted separately. It would seem appropriate to consider the two proposals jointly, in order to assess them properly.

Applicant Response

As stated previously, the applications for Stonewall Secure Business Park and the Hybrid Energy Park have been separated. With the projected shortage of up to 2,800 megawatts of power in the Northern Virginia region, the Hybrid Energy Park will provide the means to produce electric power that will address some of the Northern Virginia's projected shortage in a clean and efficient manner.

Dominion Virginia Power has stated that brownouts could start as early as 2011, in Northern Virginia. Electric power is distributed within Virginia by an electric power transmission system. Virginia's electrical network is an integral component of the regional transmission system, which serves a number of important functions. In-state electric-power generation it is far from sufficient to satisfy the State's consumption. On average only 80% of the electrical energy used by Virginia consumers is generated in-state. Approximately 20% is imported from out-of-state generators on power transmission lines to supply Virginia residents and businesses. There are electrical loses due to line resistance when transporting power from other areas.

Northern Virginia and Loudoun County are leaders in the high technology industry and are facing escalating reliability problems with electrical power generation and transmission which has resulted in threats of rolling blackouts. Electricity is an integral part of life and electric system reliability is indispensable to support residential, commercial, industrial and governmental functions. Lack of reliable electricity is not just an inconvenience but it creates an economic loss.

Loudoun County has become one of the prime locations for internet related companies. These internet related companies include numerous data centers that create high value tax revenues with few employees.

With Loudoun County's foresight the issue of electrical self sufficiency and security in the future would allow for the continuation of the expansion of these high value tax paying companies to locate within Loudoun County. Businesses and data center users require reliable, redundant sources of electricity which the Hybrid Energy Park will provide.

2. **Transition Policy Area.** Leesburg's planning has relied on development to be in accordance with the Revised General Plan's Transition Policy Area designation for the area south of the Town. The proposal, as a necessary part of the Stonewall Secure Business Center, does not appear to comply with the policies for the Transition Policy Area because of the type of use (nonresidential), intensity of use (0.6 FAR), and provision of central sewer and water proposed in the business center. Nor does the application address possible aspects of an energy plant, such as noise, vibrations, and visibility of cooling towers. An intensive,

   industrial use is not consistent with the clusters, rural villages, or nonresidential uses envisioned for the Transition Policy Area (Revised General Plan, Transition Policy Area, Community Design policies 2 and 15, pp. 8-6 and 8-7); and it seems far from the "more rural character" (RGP, p. 8-5) envisioned for the Lower Sycolin Subarea of the Transition Policy Area.

Applicant Response

The Hybrid Energy Park is appropriate for this proposed location for a number of reasons.

- ***The adjacent stone quarry and the proposed expansion and Loudoun Water's proposed water treatment plant are two compatible uses bordering and nearby the Subject Property.***
- ***The Applicant will preserve the areas within the stream valley and river stream corridor overlay district which will preserve trees and vegetation, floodplain areas, wetlands, drainage swales and steep slope areas while enhancing and improving the existing pond to provide water quality attributes for the Subject Property.***
- ***The existence of two natural gas transmission lines each transporting natural gas from differing locations within the United States allowing for redundant non interruptible source of clean fuel. If the natural gas was not available on site, natural gas would be required to be transported by trucks to the site make the site which would be unacceptable.***
- ***The proposed location contains two 230kV and one 500kV overhead high voltage transmission lines. The Hybrid Energy Park facilities will tie into the 230kV lines to power the transmission grid.***

- ***The Town of Leesburg discharges its wastewater treatment plant effluent directly into the Potomac River, reuse of this water for energy producing steam and cooling will eliminate 56 tons of nutrients and solids from the Potomac River and ultimately the Chesapeake Bay.***
- ***In addition the Hybrid Energy Park can be supplied water through the future nearby Loudoun Water reservoirs***
- ***The Applicant has tested the visual element of the proposed facilities and found the location due to the topography and existing vegetation will naturally hide and screen the various components of the Hybrid Energy Park.***
- ***The proposed location of the Hybrid Energy Park facilities were carefully considered and placed to have minimal impacts to the extent possible on the Green Infrastructure.***

The facilities will be designed with a low profile. The tallest components, i.e. the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers running through the Subject Property. A cooling tower utilizing high-efficiency mist eliminators is included in the design. Under most conditions, the cooling tower plume or mist is expected to be limited to within the Hybrid Energy Park property, and the probability of any adverse local effects from the cooling tower plume are negligible.

The Hybrid Energy Park facilities will comply with the requirements contained in the Zoning Ordinance. The major noise producing equipment, i.e. combustion turbines and steam turbine, as well as certain other equipment, will be designed with noise attenuating features. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facilities will be designed to enable exterior lighting for distinct areas of the Park to be switched off while not in use or not required for safety considerations.

Additionally, although the proposed Hybrid Energy Park is within the Transition Policy Area it is actually between the planned extractive land uses and the Suburban Policy Area. It is not located near the Rural Policy Area making the proposed location even more unique. Residential uses are not appropriate for the proposed location due to the location of the quarries, gas lines, airport impacts and high voltage transmission lines.

In particular, Leesburg Joint Land Management Area Policy 3 states, "Power generation plants are not compatible with existing residential areas within or near the Town JLMA, and therefore, are not allowed in the Leesburg JLMA." (p. 9-11) In addition, objective 4 of the community facilities and services element of the Town Plan states, "Locate and construct community facilities in regard to other Plan policies, including compatibility with the Town character, and protection and enhancement of residential areas, natural resources, and heritage resources." (p. 83) Policy 3 of the Revised General Plan was written in response to a previously proposed power plant within the JLMA; that plant was to be powered by fuel oil with towers several hundred feet tall. Virtually all the site of the currently proposed plant is outside of the JLMA. On the one hand, since the site is located at the boundary of the JLMA, it would be appropriate for the county to consider carefully the applicability of its prohibition of power plants to this site. On the other hand, if the applicant can demonstrate that the proposed plant will not have adverse air, water, energy, and aesthetic impacts, it may be worth considering the plant's acceptability in light of growing demands for electric power and the need for distributed, efficient power generation.

Applicant Response

The Applicant will demonstrate that the Hybrid Energy Park facilities will not adversely impact air quality, water, energy and aesthetics.

Air: The enclosed report prepared by MACTEC titled "Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA" dated July 1, 2009, states on pages 3 and 4 in the Summary of Results, the following:

- ***"Once the plant is built and is operating under the maximum emissions scenario, there will be negligible effect on the air quality levels at the plant property line, in any of the communities surrounding the plant, the Town of Leesburg, or any other receptors downwind from the source."***
- ***"The plant will utilize air pollution control equipment that represents the best technology available in the US today.***
- ***". . , by obtaining offsets, Green Energy will help improve the overall ozone non-attainment issue for the Washington, DC area."***
- ***"Technical obstacles are not anticipated for DEQ/EPA approvals. "***
- ***The expected ground level concentrations from the operation of the new 981 megawatt power plant are miniscule."***
- ***"In sum, the Green Energy Partners hybrid power plant will have an insignificant effect on the air quality at the property line or in any of the surrounding communities."***

Water: Water for energy production and cooling may be obtained from the Town of Leesburg by piping sewage treatment effluent to the Hybrid Energy Park. Using effluent in the process of producing energy will eliminate 2 billion gallons of effluent from being discharged into the Potomac River and Chesapeake Bay.

Energy: The area demand for energy continues to increase, Loudoun County imports 100% of its requirements for energy from outside of the County through large transmission lines. Placing the production of energy near the demand reduces the energy losses from the transmission and lessens the demand for additional large transmission lines crossing through the County.

Aesthetics: The facility will be designed with a low profile. The tallest structures, i.e. the exhaust stacks, will be lower than the existing high voltage utility transmission lines and towers running through the area.

3. **Greenbelt.** The Revised General Plan calls for a greenbelt around the Town (Leesburg Joint Land Management Area Policy 4.a, p. 9-12). The proposal does not include any specifics about preservation of the greenbelt. The Town requests that greenbelt be accommodated in development of the site.

Applicant Response
The Philip A. Bolen Memorial Park will provide a greenbelt along the north of the Hybrid Energy Park site. In addition to these features, Sycolin Creek and the surrounding floodplain areas will also provide additional greenbelt areas.

4. **Transportation.**
   a. The proposal does not include any specifics about improvements to the road system abutting the site. The Town Plan's Road Network Policy Map (which coincides with the Revised Countywide Transportation Plan) calls for Cochran Mill Road (Rt 653) to be a 4-lane, undivided through collector. According to the Town Plan, Cochran Mill Road should be relocated out of the floodplain of Sycolin Creek by crossing Sycolin Creek and traversing the site before intersecting Sycolin Road.

Applicant Response
There will be approximately 25 full-time employees for the Hybrid Energy facilities and the access to the Hybrid Energy Park will be from Gant Lane. Improvements to Gant Lane will be made to accommodate the employee traffic.

   b. The proposal does not include any specifics about improvements to the bicycle/pedestrian facilities abutting the site. The Town Plan's Bicycle/Pedestrian Facilities Policy Map shows a multi-use path along Sycolin Creek.

Applicant Response

The Hybrid Energy Park requires security with secured access and a fence surrounding the site. Due to the secure nature of the Hybrid Energy Park, bicycle/pedestrian facilities are not be appropriate. However, it is possible that these facilities could be provided along Cochran Mill Road with a future application.

Traffic and Transportation:

The various issues surrounding traffic and transportation for this project must be addressed through the Stonewall Secure Business Park application. This particular use will have an impact

on the Stonewall application, by creating a land use that produces significantly less traffic than other PD-GP uses that could be proposed for the location.

Staff will be awaiting the second submittal of the Stonewall Secure Business Park application to fully analyze the total impacts of development related to the total acreage of the Stonewall Secure Business Park and all of its uses.

Applicant Response

As stated previously, the Hybrid Energy Park will employee approximately 25 full-time people and the traffic generated by these employees will not have major impacts on the area roadways.

Utilities:

One of the main issues surrounding this application is that of the statements related to the Town of Leesburg providing effluent from our treatment facility to be utilized by the power facility. Any action regarding this part of the proposal must be endorsed by the Town Council.

Applicant Response

The Applicant understands that an endorsement by the Town Council is necessary.

Conclusions:

1. It is not known how this facility will be served by public utilities as indicated within the application.

Applicant Response

The Applicant will continue to meet with the Town and Loudoun Water to address the options for obtaining water and sanitary sewer services.

2. It is not known how the state agencies will react to the use of treated effluent from the wastewater operation in this process. The applicant must discuss the steps taken so far to address this issue.

Applicant Response

The Hybrid Energy Park facility is planning to purchase about 5 million gallons per day of either treated effluent from the Leesburg wastewater treatment plant, or Potomac River water stored in reservoirs from the new Loudoun Water treatment system. The water will be used as cooling water in a mechanical draft evaporative cooling tower, and to produce high quality process water for steam as part of the combined cycle unit. A portion of the cooling water from the cooling towers will be recycled and reused or returned to the Leesburg treatment plant. The use of treated effluent as make-up water in power facility cooling towers is increasingly common in the United States. An additional benefit will be a net reduction in the amount of treated wastewater released to the Potomac River and Chesapeake Bay by the Leesburg wastewater treatment plant.

3. It is not known how the effluent from the Town's facility will be conveyed to this facility..

Applicant Response
Effluent or reservoir water will be pumped from the Leesburg wastewater treatment plant or Loudoun Water via underground piping.

4. This proposal must be endorsed by the Town Council before the applicant proceeds any further on this application

Applicant Response
The Applicant understands that an endorsement by the Town Council is necessary.

Environmental:

The proposed power plant facility has the potential to reduce impacts on the regional and global environment. The applicant needs to provide additional detail and commitments on how they will minimize and mitigate noise and lighting pollution as well as impacts to local water, air, and other natural resources. And while tentatively recommending approval, specific issues related to the environmental impacts must be addressed through the state and local permitting process.

Of specific concern to the Town, other than listed below, is the amount and types of emissions from the venting of this project, and its impact on the local populace. We would strongly recommend that the Town be kept informed of any permitting process from agencies and jurisdictions outside of Loudoun County.

Conclusions:

1. **Energy Production:** According to the U.S. Governmental Energy Information Administration, coal-fired power plants account for about one-half of the Virginia's

electricity generation and nuclear power plants account for another approximately one-third. Natural gas and petroleum-fired power plants account for most of the rest. According to the International Energy Association, 37% of the world's man-made carbon dioxide emissions result from electricity generation. Carbon dioxide is the primary gas in greenhouse gases, which contribute to the greenhouse effect and related climate change. Coal-fired power plants produce more carbon dioxide than any other method of generating electricity and are one of the largest contributors to emissions of smog-producing air pollutants. Further, the International Energy Agency reports that coal-fired plants are the least efficient of the methods for producing electricity.

A significant portion of the electricity used in Leesburg is produced from inefficient, high- polluting coal fired power plants. The proposed combined cycle natural gas power plant will provide electricity at nearly twice the efficiency of coal powered plants while producing less than one-half of the carbon dioxide, and much smaller fractions of other greenhouse gases (NO_x and SO_2). While solar and wind energy production are even cleaner and more sustainable ways to produce electricity (they do not deplete non-renewable resources such as oil, gas, and coal), the proposed natural-gas facility is as clean and efficient as is available from fossil fuel based power plants. Considering the strategic location of the site along major gas and electric transmission lines, it makes sense to develop a combined cycle natural gas power plant here. Moreover, on a regional scale there will be environmental and natural resource benefits of the area reducing its dependence on electricity produced by coal burning power plants.

Applicant Response

Specific issues that are regulated by the EPA and administered through DEQ will be addressed through the permitting process. The Applicant will keep the Town and County informed throughout these prosesses.

2. **Air Resources Impacts:** Air resource impacts will be monitored and regulated by the Commonwealth of Virginia. I recommend that the applicant provide information on how the facility will be designed to minimize impacts to air resources through the use of advanced emissions controls such as a Selective Catalytic Reduction System to reduce nitrogen oxides and catalysts to remove carbon monoxide.

Applicant Response

The units will include state-of-the-art combustion technology and control equipment to limit air pollutant emissions. Natural gas is a clean burning fuel that when combusted generates minimal particulate and sulfur oxide emissions, and has the lowest Greenhouse Gas (GHG) emission rate of all fossil fuels. Emissions of nitrogen oxides (NOx) will be limited by the use of a dry low NOx combustion system and application of a selective catalytic reduction (SCR) control system. Carbon monoxide (CO) emissions will be reduced by use of a CO oxidation catalyst. Two of the four combustion turbines will operate as simple-cycle peaking units, only operating during periods of high demand for electric power. They will also utilize a dry low NOx combustion system and SCR to control NOx emissions during steady-state operating conditions. The expected ground level emissions concentrations from the operation of the new Hybrid Energy Park facilities are miniscule. The highest pollutant concentrations predicted from this Park will be about one half of one percent of the Virginia and EPA ambient air quality standards for any pollutant for any averaging period.

3. **Water Resources Impacts:** The combined cycle facility will use up to five million gallons of water per day which the applicant is requesting Leesburg supply from the Town's Wastewater Pollution Control facility. According to the U.S. EPA, when pollutants and heat build up in the water used in combined cycle systems, the water is often discharged into lakes or streams. This discharge usually requires a permit and is monitored.

   My primary concern related to water resources is how water will be treated prior to discharge into the local streams (Sycolin Creek, Goose Creek, and the Potomac River). The proposed power plant should not be permitted to degrade water quality in area streams through thermal or other pollution. Loudoun County may want to consider a condition of Special Exception approval related to requiring discharge treatment and monitoring to protect local streams.

   A secondary concern is for potential impacts to aquatic wildlife during drought times due to reduction of in-stream flows in the Potomac River as a result of diversion of five million gallons of water per day. Currently, those five million gallons of treated water from the Town's facility are discharged to the Potomac.

Applicant Response

The Hybrid Energy Park facility is planning to purchase about 5 million gallons per day of either treated effluent from the Leesburg wastewater treatment plant, or Potomac River water stored in reservoirs from the new Loudoun Water treatment system. The water will be used as cooling water in a mechanical draft evaporative cooling tower, and to produce high quality process water for steam as part of the combined cycle unit. A portion of the cooling water from the cooling towers (approx. 1 MGD) will be recycled and reused or returned to the Leesburg wastewater treatment plant. Any surface water and stormwater discharges into area creeks and streams will be regulated under a VPDES permit. The Potomac River Basin Commission regulates flows in the Potomac River watershed, and they will be consulted and appropriate guidelines followed concerning water use during certain drought conditions.

No process water will be discharged from the site to Sycolin Creek; the existing on site pond will be improved for stormwater management for water quality.

4. **Noise Impacts:** The applicant should provide information of measures to be used to control noise.

Applicant Response
The Hybrid Energy Park facilities will comply with the requirements contained in the Loudoun County Zoning Ordinance. The major noise producing facility equipment, i.e. combustion turbines and steam turbine, as well as certain other equipment, will be designed with noise attenuating features as necessary to meet these requirements.

5. **Light Impacts:** The applicant should provide information on the height of all the components of the facility and what lighting is proposed. All outdoor lighting should be dark sky compliant to minimize light pollution.

Applicant Response
This is an industrial facility, and as such will require external lighting in all areas to allow for safe operations. Exterior lighting will be directed downward and inward to the extent feasible in order to prevent any glare on adjacent properties. In addition, the facility will be designed to enable exterior lighting for distinct areas of the facility to be switched off while not in use or not required for safety considerations. The combustion turbine exhaust stacks will be the tallest structures. The project will be reviewed with the FAA for potential impacts to Leesburg airport flight operations. Any required lighting or other considerations as directed by the FAA will be included in the final facility design.

6. **Natural Habitat and Endangered/Threatened Species:** The site has significant natural habitat that plays a role in the region's ecology. The application included a natural resource assessment showing presence of rare species of plants and animals (for example, American Ginseng and the Wood turtle). Design of the site should include retention of an integrated network of key habitat areas.

Applicant Response
RSCOD combined with the stream valley buffer and tree preservation areas will protect the natural habitat.

GOOSE CREEK SCENIC RIVER ADVISORY COMMITTEE (HELEN CASEY, 4/23/2009)

Since the project has no immediate impact on Goose Creek and its scenic status, we have no comment on this application other than to advise caution concerning any runoff from the project into Sycolin Creek, which feeds Goose Creek.

Please keep us apprised of other referrals and/or information that may affect Goose Creek scenic beauty or water quality in regard to this project. As information is developed, we reserve the right to bring any further comments to your attention.

Applicant Response

The Applicant appreciates the comments from the Goose Creek Scenic River Advisory Committee and the fact that the proposed Hybrid Energy Park will not have negative impacts on the Goose Creek.

With this letter and the revised application materials, the Applicant has addressed all of the comments from the various referral entities. The Applicant looks forward to meeting with Staff and the Town of Leesburg to work out the details and address any unresolved issues.

Thank you for your assistance with these applications.

Sincerely,

WALSH, COLUCCI, LUBELEY, EMRICH & WALSH, P.C.

Kimberlee Welsh Cummings, AICP
Land Use Planner

KWC/tlm
Enclosures